U.S. Department of Justice

Environment and Natural Resources Division

BSG:RMS

Environmental Enforcement Section
P.O. Box 7611
Washington, DC 20044-7611

Telephone: (202) 514-1308
Facsimile: (202) 616-6584

December 19, 2001

VIA FEDERAL EXPRESS

Clerk
United States District Court
for the District of Minnesota
202 U.S. Courthouse
300 South Fourth Street
Minneapolis, MN 55415

Re: United States v. Metropolitan Council, Civil Action No. 99-1105 DWF/AJB

Dear Sir or Madam:

Enclosed for filing in the above-captioned case please find the original of the following documents: (1) a Notice of Motion; (2) the United States' Motion to Approve Consent Decree Amendment; and (3) a Memorandum of Law in Support of United States' Motion to Approve Consent Decree Amendment.

We also have enclosed an envelope containing two copies of those documents, and ask that they be forwarded to Judge Frank pursuant to the Local Rules.

Finally, we have enclosed one set of copies to be file-stamped and returned to me in the enclosed, self-addressed envelope. Thank you for your assistance in that regard.

Sincerely,

Randall M. Stone

RANDALL M. STONE
Trial Attorney

Copies (with Enclosures) to:

Robert E. Cattanach
Dorsey & Whitney LLP
50 South Sixth Street - Suite 1500
Minneapolis, MN 55402-1498

Counsel for the Metropolitan Council

All for the Earth
c/o John Wesley
1747 Blue Bill Drive
St. Paul, MN 55122

Earth Protector, Inc.
c/o Leslie Davis
622 Lowry Avenue North
Minneapolis, MN 554111-1441

Stephen Greenwood, P.E.
1111 Argyle
St. Paul, MN 55103

Friedrich A.P. Siekert
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United States Courthouse - Room 600
300 South Fourth Street
Minneapolis, MN 55415

Mary T. McAuliffe
Associate Regional Counsel
U.S. Environmental Protection Agency - Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

UNITED STATES OF AMERICA, Plaintiff, v. METROPOLITAN COUNCIL, Defendant.	)	Civil Action No 99-CV-1105 (DWF/AVB)

NOTICE OF MOTION

TO: METROPOLITAN COUNCIL
c/o Robert E. Cattanach
Dorsey & Whitney LLP
50 South Sixth Street - Suite 1500
Minneapolis, MN 55402-1498

Counsel for the Metropolitan Council

Please take notice that Plaintiff, the United States, with the assent of Defendant, Metropolitan Counsel, has filed a Motion to approve the proposed Consent Decree Amendment lodged with the Court on September 4, 2001. Neither the United States nor the Metropolitan Counsel requests a hearing on the Motion.

Respectfully submitted,

JOHN C. CRUDEN
Acting Assistant Attorney General
Environment and Natural Resources Division

Randall M. Stone

RANDALL M. STONE
Trial Attorney
Environmental Enforcement Section
United States Department of Justice
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District of Minnesota

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OF COUNSEL:

Mary T. McAuliffe
Associate Regional Counsel
U.S. Environmental Protection Agency - Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

CERTIFICATE OF SERVICE

I hereby certify that on this date I caused the foregoing Notice of Motion, and the accompanying United States' Motion to Approve Consent Amendment and Memorandum of Law in Support of United States' Motion to Approve Consent Decree Amendment, to be served by first-class mail, pre-paid, on:

Robert E. Cattanach
Dorsey & Whitney LLP
50 South Sixth Street - Suite 1500
Minneapolis, MN 55402-1498

Counsel for the Metropolitan Council

All for the Earth
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Stephen Greenwood, P.E.
1111 Argyle
St. Paul, MN 55103

Randall M. Stone

Dated: December 20, 2001

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

UNITED STATES OF AMERICA, Plaintiff, v. METROPOLITAN COUNCIL, Defendant.	)	Civil Action No 99-CV-1105 (DWF/AVB)

UNITED STATES' MOTION TO APPROVE CONSENT DECREE AMENDMENT

Plaintiff, the United States of America, hereby moves the Court to enter an Order approving the Consent Decree Amendment lodged with the Court on September 4, 2001, and submits the accompanying "Memorandum of Law in Support of United States' Motion to Approve Consent Decree Amendment." The Consent Decree Amendment would substitute a proposed Amended Appendix C to the Consent Decree previously approved and entered in this case. The Court entered an Order on February 6, 2001 approving the existing Consent Decree, and signed that Consent Decree on March 16, 2001. By agreement between the United States and Defendant Metropolitan Council ("Met"), the proposed Amended Appendix C would describe a modified Supplemental Environmental Project to be performed by Met under the Consent Decree. No other terms of the Consent Decree would change. Met has informed the United States that it supports the Court's approval of the Consent Decree Amendment. As the basis for this Motion, the United States avers as follows.

1. The Court retained jurisdiction to consider and approve the proposed Consent Decree Amendment. Paragraph 72 of the Consent Decree provides that the "Court shall retain jurisdiction of this matter until further order of the Court or until termination of this Consent Decree." The Consent Decree has not been terminated.

2. The Complaint in this action sought injunctive relief and civil penalties to redress alleged violations of the Clean Air Act, 42 U.S.C. §§ 7401-7671q. The alleged violations occurred at solid waste incinerators located at Met's Metropolitan Wastewater Treatment Plant in St. Paul, Minnesota (the "Metro WWTP").

3. The claims in the Complaint were resolved on the terms set forth in the Consent Decree approved by the Court. Among other things, the Consent Decree required Met to accelerate it's planned installation of new pollution-reducing fluidized bed incinerators at the Metro WWTP, at an estimated cost of $200 million. Section VII of the Consent Decree also required that Met spend $1.6 million to perform a Supplemental Environmental Project ("SEP") designed to achieve *further* reductions in air pollution from the Metro WWTP, beyond the reductions required by law. More specifically, the existing Appendix C to the Consent Decree required that Met expend at least $1.6 million on a SEP that would involve adding a dry electrostatic precipitator to the air pollution control train of one of the new fluidized bed incinerators to be installed at the Metro WWTP. Met estimated that the dry electrostatic precipitator would result in an additional 40% removal of particulate matter from its air emissions.

4. Since the Court's approval of the Consent Decree earlier this year, Met and its technical consultants have done additional engineering analyses, and have determined that

alternative air pollution control equipment could be installed as an improved substitute SEP, at comparable cost. Compared with the dry electrostatic precipitator technology outlined in the original Appendix C, Met and its technical consultants believe that the fabric filter technology outlined in the Amended Appendix C would result in *increased* removal of key pollutants, including particulate matter and mercury. Met and its consultants estimate that the total cost of the fabric filter technology would exceed $1.6 million, and would be approximately the same as the cost of a dry electrostatic precipitator. Based on the its review of the information provided by Met, the Environmental Protection Agency ("EPA") agreed that the substitute SEP was appropriate. The proposed Amended Appendix C describing the substitute SEP is attached as Exhibit A to the Memorandum submitted in support of this Motion.

5. After the proposed Consent Decree Amendment was lodged with Court, notice of the proposed amendment was published in the Federal Register, 66 Fed. Reg. 48,065 (Sept. 17, 2001), and public comments were solicited. The United States received three public comments. (Copies are attached as Exhibit B to the accompanying Memorandum.) The United States also received comments from Met, responding to many of the points raised by the public comments. (The Met Comments are attached as Exhibit C to the accompanying Memorandum.) After a thorough consideration of the comments, the United States has determined that the Consent Decree Amendment is appropriate and consistent with the public interest. As discussed in detail in the accompanying Memorandum, the comments do not establish any basis for the United States to withdraw its consent to the proposed Consent Decree Amendment, or for the Court to deny approval of the Consent Decree Amendment. Therefore, the United States requests that the Court enter an Order approving the Consent Decree Amendment.

For the foregoing reasons, and the reasons set forth in the accompanying Memorandum, the Court should enter an Order approving the Consent Decree Amendment.

Respectfully submitted,

JOHN C. CRUDEN
Acting Assistant Attorney General
Environment and Natural Resources Division

Randall M. Stone

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OF COUNSEL:

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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MINNESOTA

UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
v.	)	Civil Action No 99-CV-1105
	)	(DWF/AVB)
METROPOLITAN COUNCIL,	)	
	)	
Defendant.	)	
	)	

MEMORANDUM OF LAW IN SUPPORT OF UNITED STATES' MOTION TO APPROVE CONSENT DECREE AMENDMENT

Plaintiff, the United States of America, submits this Memorandum in support of its Motion to approve the Consent Decree Amendment lodged with the Court on September 4, 2001. The Amendment would substitute a proposed Amended Appendix C to the Consent Decree previously approved and entered in this case. The Court entered an Order on February 6, 2001 approving the existing Consent Decree, and signed that Consent Decree on March 16, 2001. By agreement between the United States and Defendant Metropolitan Council ("Met"), the proposed Amended Appendix C would describe a modified Supplemental Environmental Project to be performed by Met under the Consent Decree. No other terms of the Consent Decree would change. For the reasons detailed below, the United States requests that the Court enter an Order approving the Amended Appendix C to the Consent Decree. Met has informed the United States that it supports the Court's approval of the Consent Decree Amendment.[1]

---

[1] The Court retained jurisdiction to consider and approve the proposed Consent Decree Amendment. Paragraph 72 of the Consent Decree provides that the "Court shall retain jurisdiction of this matter until further order of the Court or until termination of this Consent Decree." The Consent Decree has not been terminated.

I. INTRODUCTION AND BACKGROUND

The Complaint in this action sought injunctive relief and civil penalties to redress alleged violations of the Clean Air Act, 42 U.S.C. §§ 7401-7671q. The alleged violations occurred at solid waste incinerators located at Met's Metropolitan Wastewater Treatment Plant in St. Paul, Minnesota (the "Metro WWTP").

The claims in the Complaint were resolved on the terms set forth in the Consent Decree approved by the Court. Among other things, the Consent Decree required Met to accelerate it's planned installation of new pollution-reducing fluidized bed incinerators at the Metro WWTP, at an estimated cost of $200 million. Section VII of the Consent Decree also required that Met spend $1.6 million to perform a Supplemental Environmental Project ("SEP") designed to achieve *further* reductions in air pollution from the Metro WWTP, beyond the reductions required by law.[2/] More specifically, the existing Appendix C to the Consent Decree required that Met expend at least $1.6 million on a SEP that would involve adding a dry electrostatic precipitator to the air pollution control train of one of the new fluidized bed incinerators to be installed at the Metro WWTP. Met estimated that the dry electrostatic precipitator would result in an additional 40% removal of particulate matter from its air emissions.

Since the Court's approval of the Consent Decree earlier this year, Met and its technical consultants have done additional engineering analyses, and have determined that alternative air

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[2/] A SEP is an environmentally beneficial project that a defendant voluntarily agrees to undertake as part of a settlement of an enforcement action, but which the defendant is not otherwise legally required to perform. EPA has developed and published a policy for evaluating proposed SEPs, entitled "Issuance of Final Supplemental Environmental Projects Policy". See 63 Fed. Reg. 24,796 (May 5, 1998). The United States' decision to accept a proposed SEP as part of a settlement, as well as the assessment of the settlement value of the SEP, is encompassed by the United States' broad discretion to settle cases. Id. at 24,798.

pollution control equipment could be installed as an improved substitute SEP, at comparable cost. Compared with the dry electrostatic precipitator technology outlined in the original Appendix C, Met and its technical consultants believe that the fabric filter technology outlined in the Amended Appendix C would result in *increased* removal of key pollutants, including particulate matter and mercury. Met and its consultants estimate that the total cost of the fabric filter technology would exceed $1.6 million, and would be approximately the same as the cost of a dry electrostatic precipitator. Based on the its review of the information provided by Met, the Environmental Protection Agency ("EPA") agreed that the substitute SEP was appropriate. The proposed Amended Appendix C describing the substitute SEP is attached hereto as Exhibit A.

After the Consent Decree Amendment was lodged with Court, notice of the proposed amendment was published in the Federal Register, 66 Fed. Reg. 48,065 (Sept. 17, 2001), and public comments were solicited. The United States received three public comments. (Copies are attached hereto as Exhibit B.) The United States also received comments from Met, responding to many of the points raised by the public comments. (The Met Comments are attached hereto as Exhibit C.) After a thorough consideration of the comments, the United States has determined that the Consent Decree Amendment is appropriate and consistent with the public interest. As discussed in detail below, the comments do not establish any basis for the United States to withdraw its consent to the proposed Consent Decree Amendment, or for the Court to deny approval of the Consent Decree Amendment. Therefore, the United States requests that the Court enter an Order approving the Consent Decree Amendment.

II. OVERVIEW OF THE COMMENTS RECEIVED

The United States received three comments during the public comment period: (1) comments by Earth Protector, Inc.; (2) comments by All for the Earth; and (3) comments by Stephen Greenwood. Met also submitted comments responding to the points raised by the three public commenters

A. The Public Comments Concerning the Substitute SEP

The Earth Protector and All for the Earth comments both contend that Met should not have received credit for the SEP included in the existing Consent Decree – a dry electrostatic precipitator – because Met had already proposed to install that type of pollution control equipment in a January 14, 1999 permit application. By extension, the comments contend that Met should not receive credit for installing a fabric filter as a substitute SEP. Without offering any explanation, the All for the Earth comments go on to assert that "removal of the dry [electrostatic precipitator] provides less mercury reductions."

B. The Public Comments Concerning Other Issues

The All for the Earth comments and the Greenwood comments both raise issues that have no connection with the SEP substitution that the proposed Consent Decree Amendment would accomplish. For example, the All for the Earth comments argue that Met should dispose of its sewage sludge by land application, rather than by incineration. Echoing the points he made in his earlier objections to the existing Consent Decree, Mr. Greenwood's comments contend that upgrading Met's old multiple hearth incinerators would be a less costly alternative than installing

entirely new fluidized bed incinerators.[3] This Memorandum does not consider those issues further because they have no bearing on this request that the Court approve the substitute SEP specified by the proposed Consent Decree Amendment.

C. Met's Response to the Public Comments

Met submitted its own comments (dated November 5, 2001 and November 8, 2001) responding to the three public comments and justifying the proposed SEP substitution. Met's comments first point out that the substitute SEP's fabric filter technology could achieve greater reductions in mercury and particular matter emission than the dry electrostatic precipitator technology required by the original SEP. Recognizing that a SEP must be a project that the settler is not legally required to perform (other than by voluntary entry into a consent decree), the comments explain that Met was in no way obligated to install either a dry electrostatic precipitator outlined by the original Consent Decree Appendix C or the fabric filter technology specified by the Amended Appendix C. Met points out that although Met's staff had proposed to install a dry electrostatic precipitator in a preliminary permit amendment application submitted to the Minnesota Pollution Control Agency in January 1999, that proposal was tentative and subject

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[3] Mr. Greenwood is a member of the Met staff who participated in Met's own internal process for evaluation options for modernizing the incinerators at the Metro WWTP. Mr. Greenwood's most recent comments (dated September 20, 2001) raise essentially the same issues as: (1) his earlier comments (dated September 28, 2000) on the original Consent Decree, and (2) an internal memorandum he wrote to Met (dated December 17, 1998) before this case was filed. Like those earlier documents, Mr. Greenwood's most recent comments conclude by requesting that "EPA and the Court reconsider its requirement for the Met Council to construct a new $200 million dollar fluid bed incinerator complex, which many other cities with multiple hearth incinerators are not being required to do." In approving the existing Consent Decree over Mr. Greenwood's objections, the Court's February 6, 2001 Order found that "Mr. Greenwood's views on the relative merits of upgrading the old incinerators vis-a-vis installing new incinerators were fairly and fully considered during Met's public decision-making process in the late 1990s."

to change, and went beyond what the law required. In fact, Met's comments indicate that Met staff's proposal to install that optional equipment might not have survived institutional cost-cutting mandates, and might not have been approved by Met's governing board, if it had not been required as a SEP under the existing Consent Decree.

III. ARGUMENT

A. Standard of Review Governing this Court's Review of the Proposed Consent Decree Amendment

The Court explained the standard governing judicial review of a consent decree in its February 6, 2001 Order approving the existing Consent Decree.

> In a case such as the one before the Court, the Court is required to review a proposed Consent Decree for fairness, reasonableness, and consistency with the statute at issue in the case. United States v. Union Elec. Co., 132 F.3d 422, 430 (8th Cir. 1997). The standard to be applied 'is not whether the settlement is one which the court itself might have fashioned, or considers as ideal, but whether the proposed decree is fair, reasonable, and faithful to the objectives of the governing statute.' United States v. Cannons Eng'g Corp., 899 F.2d 79, 85 (1st Cir. 1990). For that reason, a reviewing court is not 'empowered to rewrite the settlement agreed upon by the parties,' or to 'delete, modify, or substitute certain provisions of the consent decree.' Officers for Justice v. Civil Service Comm'n of San Francisco, 688 F.2d 615, 630 (9th Cir. 1982), cert. denied 459 U.S. 1217 (1983). Accord, United States v. Akzo Coatings of America, Inc., 949 F.2d 1409, 1435 (6th Cir. 1991).
>
> In undertaking its review of this case, the Court is required to give some deference to the Consent Decree negotiated by the EPA and the Department of Justice.
>
> > Where an administrative agency has committed itself to a consent decree, the district court must exercise some deference to the agency's determination that settlement is appropriate, FTC v. Standard Fin. Mgmt. Corp., 830 F.2d 404, 408 (1st Cir. 1987), and 'refrain from second-guessing the Executive Branch.' United States v. Cannons Eng'g Corp., 899 F.2d 79, 84 (1st Cir. 1990).

> Conservation Law Found., 989 F.2d at 58. Accord, Union Elec., 132 F.3d at 430 ('we must consider EPA's expertise in these issues').

A comparable standard governs the Court's review of the proposed Consent Decree Amendment. A district court should approve "a modification assented to by all parties to a decree . . . so long as the resulting array of rights and obligations is within the *zone of settlements* consonant with the public interest." United States v. Western Elec. Co., 993 F.2d 1572, 1576 (D.C. Cir. 1993) (emphasis in original).[4]

B. The Consent Decree Amendment is in the Public Interest, and Should Be Approved

The proposal to substitute an alternative pollution control technology for the SEP included in the Consent Decree is consistent with the public interest, primarily because it would advance the air pollution reduction goals of the Clean Air Act. The substitute SEP also is consistent with EPA's "Final Supplemental Environmental Projects Policy," 63 Fed. Reg. 24,796 (May 5, 1998) (the "SEP Policy"). To qualify under EPA's SEP Policy, a SEP must be: (1) an *environmentally beneficial project*, (2) a project that the defendant is *not otherwise legally required to perform*, and (3) a project that the defendant agrees to undertake *in settlement of an enforcement action*. 63 Fed. Reg. at 24,797-98. The substitute SEP's compliance with each of those requirements is analyzed below.

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[4] No evidentiary hearing is required in order to evaluate a consent decree proposed by the United States. See Union Elec., 132 F.3d at 430; United States v. Metropolitan St. Louis Sewer Dist., 952 F.2d 1040, 1044 (8th Cir. 1992); United States v. Charles George Trucking, Inc., 34 F.3d 1081, 1085 (1st Cir. 1994) ("requests for evidentiary hearings are, for the most part, routinely denied — and rightly so — at the consent decree stage in environmental cases"); Cannons Eng'g, 899 F.2d at 94 ("In general, we believe that evidentiary hearings are not required").

1. The Substitute SEP is an Environmentally Beneficial Project

The original SEP and the substitute SEP would both be environmentally beneficial projects, although the substitute SEP would yield *greater* environmental benefits. Met and its engineering consultants have estimated that an additional 40% reduction in particulate matter emissions and a 70% reduction in mercury emissions could be achieved by adding a dry electrostatic precipitator to the air pollution control train of one of its new incinerators, as called for by the existing Consent Decree Appendix C. As indicated by Met's comments, the fabric filter pollution control technology specified by the proposed Amended Appendix C could achieve comparable or better particulate removal, and up to *90%* mercury removal. The proposed SEP substitute would yield greater pollution reduction benefits than the original SEP, at comparable cost.

2. The Substitute SEP is Not Otherwise Required by Law.

Met's comments indicate that Met was not and is not legally required to install either a dry electrostatic precipitator or the proposed substitute fabric filter technology, other than by its voluntary entry into the Consent Decree. The proposed Consent Decree Amendment would not change the following Consent Decree certification by Met, confirming that the SEP is not otherwise required by law:

> Met hereby certifies that, as of the date of this Consent Decree, Met is not required to perform or develop the SEP described in Appendix C by any federal, state or local law or regulation; nor is Met required to perform or develop the SEP by agreement, grant or as injunctive relief in this or any other case or in compliance with state or local requirements. Met further certifies that it has not received, and is not presently negotiating to receive, credit in any other enforcement action for the SEP. Further, Met certifies that it has not received, and will not in the future receive as a SEP or other penalty offset in any other enforcement action for such project, or credit for any emissions reductions resulting from such project in any federal,

state or local emissions trading of early reduction program.

Consent Decree Paragraph 11. Although Met's staff had proposed a dry electrostatic precipitator in 1999 as part of a preliminary State air permit amendment application (as noted by the All for the Earth and Earth Protector comments), that proposal was tentative and subject to change (as indicated by Met's comments). As Met's comments explain, "the final air permit application was not submitted until March 2001 and could have been changed if the Council had not committed to [install a dry electrostatic precipitator] in the Consent Decree."

3. Met Agreed to the Original SEP, and has now Agreed to the Substitute SEP, in Settlement of an Enforcement Action.

The SEP requirements were an important part of the settlement of an enforcement action, and their inclusion in the Consent Decree yielded two clear benefits, as detailed below.

First, the settlement *guaranteed* that the optional pollution control equipment would actually be installed, and that additional pollution reductions would actually occur. Although Met's staff had *proposed* to install a dry electrostatic precipitator before this enforcement action was commenced, the *commitment* to install that optional pollution control equipment was obtained as part of the original settlement of this enforcement action. As noted above, there was substantial uncertainty surrounding the Met staff's proposal to install that equipment until the requirement to do so was made a term of the Consent Decree.

Second, the settlement ensured that optional pollution control equipment will be installed *sooner* than originally proposed by Met's staff. As the Court noted in its February 6, 2001 Order approving the existing Consent Decree, one of the main benefits of the overall settlement was that it required Met to "accelerate its planned installation of new pollution-reducing fluidized bed incinerators at the Metro WWTP." Because the optional pollution control equipment would be

installed on an accelerated schedule along with the new incinerators, the SEP provisions of the Consent Decree would start yielding pollution reduction benefits well before any benefits would have been realized under the Met staff's longer-term proposal to install a dry electrostatic precipitator.

CONCLUSION

The proposed SEP substitute is consistent with the public interest and consistent with EPA's published SEP Policy because the substitute technology will achieve improved air pollution reductions, because the SEP is not otherwise required by law, and because Met agreed to the SEP as part of the settlement of an enforcement action. The Court should therefore approve the parties' proposed Amended Appendix C to the Consent Decree.

Respectfully submitted,

JOHN C. CRUDEN
Acting Assistant Attorney General
Environment and Natural Resources Division

Randall M. Stone

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OF COUNSEL:

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77 W. Jackson Blvd.
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Exhibit A

AMENDED APPENDIX C

United States v. Metropolitan Council

SUPPLEMENTAL ENVIRONMENTAL PROJECT

Met Council proposes to add a fabric filter ("FF") to the air pollution control train of one of the new fluidized bed incinerators at the Met WWTP.

A base air pollution control train comprised of a wet scrubber followed by a wet electrostatic precipitator ("ESP") is required for removing particulate matter (both PM and PM-10) from the flue gases emitted from a fluidized bed incinerator. The wet scrubber will primarily remove PM/PM10 and acid gases while the wet ESP will remove particulate matter and the heavy metals that exist as condensable oxides and salts. The FF will be added ahead of the wet scrubber in the air pollution control train to provide enhanced particulate removal.

In the FF, flue gas is passed through a fabric, causing PM to be collected on the fabric by sieving or other mechanisms. During operation, a dust cake also forms on the filter from the collected PM and significantly increases collection efficiency. Particles are collected on the fabric and drop into a hopper below the unit. Pulse-jet cleaning with a short burst of high pressure air also is used to dislodge the dust cake from the fabric.

This SEP will result in a significant net environmental benefit. The FF will result in a significant additional reduction in PM/PM-10 emissions from the incinerator. While the actual reduction will vary depending on actual sludge throughput in the incinerator, the maximum additional reduction is projected to be approximately 3.5 tons of PM/PM-10 per year, based on design capacity. The combination of the FF and the wet scrubber/wet ESP effectively will achieve among the highest level of PM/PM-10 emissions reduction feasible. The FF will also achieve enhanced mercury removal.

The FF will be installed in conjunction with the construction of the fluidized bed incinerator. The FF will be operational at the startup of the incinerator. The estimated cost of adding the FF to an incinerator air pollution control train is in excess of $1.6 million (as measured by 1998 dollars).

Met Council hereby represents that the FF is not required by NSPS regulations or Minnesota SIP performance requirements.

Exhibit B

Thursday, September 20, 2001

To: Environmental Protection Agency
Region 5
From: Stephen Greenwood

Re: Consent Decree – U.S. v. Metropolitan Council.

On September 28, 2000, I submitted in good faith comments concerning how to upgrade the existing multiple hearth incinerators in a memorandum entitled "Suggestions on how to reduce odors, particulate, mercury & heavy metal emissions without new incinerators and cut the capital budget by $125 to $150 million", dated December 17, 1998. Also, I had submitted a complaint to the Board of Engineering as required by state statute concerning the project, but the case was closed in one week. I consider the Consent Decree settlement i.e. construction of a complete new $200 million incineration and solids handling facility unfair to rate payers. This letter is to document, what I believe has been technically misrepresented.

The regulatory basis for this complaint are the following:

1. Metropolitan Council Employee Conduct Procedure 4-6A - "Falsification or Misrepresentation of Information" - No employee or applicant for employment may intentionally provide information he/she knows to be false to the Council, its employees or agents, or members of the public.

2. Minnesota State Statute 1805.0200 Subp.4. C. Personal Conduct, "A licensee shall not:.. engage in conduct involving dishonesty, fraud, deceit, or misrepresentation."

3. Minnesota State Statute 1805.0400 "A licensee shall seek and engage in only the professional work or employment the professional is competent and qualified to perform by reason of education, training or experience."

Each item of disagreement is given below:

1. Incinerator Rehabilitation

The Consent Decree states that "It is the Court's finding that Mr. Greenwood's view on the relative merits of upgrading the old incinerators vis-a vis installing new incinerators were fairly and fully considered during the Met's public decision making process in the late 1990's." There are reasonable grounds that the estimate for upgrading the existing system was misrepresented to the public, EPA and possibly to the Court.

In an memo by a Met Council, Solids Core Team member entitled "Inspection Tour of Fluid Bed /Rebuilt Multiple Hearth Facilities", dated April 11, 1998 stated the following:

> " Someone ... should go thru the Seneca rebuild cost in detail and breakout exactly what incinerator work was and how much it cost. The Solids Core Team roughly scaled up Seneca's cost to $90 million for Metro. I think we need a better number to be able to evaluate how realistic or complete any proposals received might be."

Staff knew that using cost information from Seneca rebuild was complex. The use of the Seneca WWTP rehabilitation cost for its incinerator and dewatering system was never proven to be

representative of rehabilitation costs for the Metro Plant incineration system by consultants or staff. The scale-up calculation was never distributed for peer or public review. The Seneca WWTP solids handling building rehabilitation consisted of many items; new ash silo's, thickening centrifuges, extensive building structural modifications, laboratory modifications, new afterburners, removal and replacement of five out of the eight brick hearths + ceiling (a virtual demolition of the multiple hearth incinerator), new HVAC system, new instrumentation/computer system, new odor control scrubbers and many other items. Most of the cost items for the Seneca WWTP rehabilitation would not have been required for upgrading Metro Plant incinerators. For example, the Metro Plant incinerator facility has a new computer system, new control room, hearth 0 burners, odor control system, HVAC systems, and thickeners for waste activated sludge. There was no structural inspection to justify why five hearths and the ceiling would have to replaced at the Metro incinerators, when there never has been a single hearth that has had to been replace (to the best of my knowledge). Trying to extract a rebuild cost for the Metro Plant incinerators from Seneca WWTP data would be extremely difficult and probably inaccurate or misrepresentative. In essence, the scale up $90 million dollar estimate is 'stacking the deck', against the rehabilitation of the multiple hearth incinerators.

If the Seneca data was to be used to scale up to Metro plant's costs, then two reports would be needed. First, would be a complete breakdown of Seneca's costs. Second, would be a report on what repairs and costs would be needed for the Metro plant incinerator facilities. These reports would be difficult if not impossible for one person. It would be easier and more accurate to determine what incinerator repairs and upgrades are required for the Metro Plant.

A memo date of April 11, 1998 means that accurate inspection reports and repair / rehabilitation costs for the existing incinerators were never obtained from any of the three consultants by the time public meetings started in March 1998. This clearly indicates that the three national consultants, whom recommended the demolition of the existing system have not made their own incinerator inspections and rehabilitation cost analysis.

I know that both Green Bay and Indianapolis had inspections and cost estimates for rehabilitation of their existing multiple hearth incinerators and those estimates were in the 2 to 3 million-dollar range per incinerator. Neither of these facilities are being required to demolish their incineration systems due to age, O&M costs, public health or having an emergency damper. Thus, there are reasonable grounds the $90 million dollar estimate to rehabilitate six multiple hearth incinerators is misrepresented.

I do not think it is fair to rate payers whom have spent $100+ million dollars on a industrial facility in the 1980's and millions in consultant reports, to spend $150+ million for a new facility based a roughly scaled up cost estimate from the Seneca WWTP.

2. Structural Inspection Reports

In my December 17, 1998 memo, I asked that **structural inspection reports, done according to manufactures procedures** for the incinerators and the off gas system be included, to document the actual condition of the incineration system. Consultants stated that the Master Plan included a review of all of the components. In the Metro Master Plan report, there is no record of any physical testing done on the existing incineration system or any subsystems, such as the waste heat boiler, breeching, ash system, done according to manufactures recommendations. Only generic statements are given that all subsystems need to be replaced.

There is another reason to believe that manufactures procedures to inspect the incinerator were not followed. When I talked with the incinerator manufacture in September 1998, I asked had anyone

called them about the project to demolish the multiple hearth incinerators and replacement with fluid bed incinerators. I was told that no one else had called them. This means that none of the three consultants and/or staff had called the manufacture to verify incinerator inspection procedures or the incinerator design life of '25 years', by the time the project was being discussed in the public. The manufacture can give references of multiple hearth incinerators still operating from the 1930's and 1940's.

Going inside the incinerator and off-gas system to conduct an inspection is a confined, dusty and dirty job. In the past, only bricklayers have conducted the incinerator inspections and repair. Over a year ago, I have asked bricklayers, if they knew of any structural inspection of the incinerators by consultants/staff. I was told that none of the consultants have ever gone into the incinerators for a structural inspection. The only time consultants/staff were inside the incinerators was to for relocating burners to another hearth. It is unlikely any consultant/staff did a valid incinerator inspection, according to manufacture's standards. Without any valid inspection, any inspection report and/or estimated repair costs must be considered suspect and potentially 'misrepresentative'.

It appears that no physical testing of the incineration system was conducted by any of the three major consultants, staff and/or government inspectors. Also, there were no recommendations for testing of the incinerator, off-gas system components or subsystems in accordance with manufactures procedures by qualified personnel in any of the major consultant's reports.

3. Qualifications

In September 1998, I called the manufacture (BSP Inc) about an inspection of an incinerator. They stated to me that there was only one other company that they would consider qualified to conduct an engineering evaluation of the incinerators. This indicates that various consultants, Met Council and governmental engineers may not be qualified to conduct the incinerator structural analysis, which would be a violation of state code.

I have no indication that any Met Council staff member or consultant has been qualified to conduct the inspection of the multiple hearth incinerators, according to manufacture's standards. I do not think it is fair to the ratepayers, to base the demolition of the incinerators on inspections by unqualified personnel.

4. Public Health

"Public Health" is one of the justifications for the new fluid bed incinerators verses upgrading the existing system, (with the venturi-pak, chemical precipitation, leak proof dampers and current emergency damper opening rates). I have never seen any published public health data comparing with the two alternatives.

I request that the EPA present the public health risk data for the two incinerator alternatives, which would include cancer and mortality data, and health care cost savings. The reason is that the multiple hearth incinerator with leak proof emergency dampers, a venturi pak and with chemical precipitation of the scrubber water would have been one of the best systems in the country. In effect, if this upgraded system is not good enough to protect the public health of the people, then virtually every multiple hearth incinerator in the country (including Seneca's incinerators) would have to be demolished. It also means that the original EPA lawsuit should not have been on the 'Operation and Maintenance' of the incinerators; the national office of the EPA simply should have required the demolition of all multiple hearth incinerators.

5. Suggested Modifications

My understanding from the EPA is that Met Council representatives stated to the EPA they tried my suggestions and nothing worked. All of my recommendations to improve the system have been proven in at least in one full-scale facility. Each proposed modification is summarized below:

a. **High Solids Centrifuges to reduce odor**. Centrifuges have working since the early 1990's in Chicago, Los Angles, Washington DC, and Seneca. Centrifuges have been proven to be cost effective at the Metro Plant and are being installed now.

b. **600 Hp variable speed motor to reduce incinerator 'high current' dumps and allow incinerator feed at design rates of 3.3 dtph**. This was never installed and tested at Metro. Variable speed motors have been working at Seneca since the early 1990's. There is a 20 to 25 inch w.c. drop at Seneca, compared to a 65+ inch pressure drop at the Metro Plant. NSP would have paid about 20% of the variable speed motor cost to reduce electrical energy usage. The incinerators have been tested many times during the 1980's at design feed rates, the problem always was the high motor amperage at design feed. It would be cost effective to make any motor base structural modifications, so a correctly size motor could be installed.

c. **Water Sprays to reduce high temperature excursions and flare-ups**. Using water is to cool high temperatures is better than using air. Water sprays have worked for 2 ½ years at Seneca. Spray nozzles need to be unplugged once or twice a year. Sprays were also proven at Cleveland WWTP. Two water sprays were installed at Metro, after the EPA lawsuit. Four sprays more have been ordered. Optimum location still needs to be determined by testing.

d. **Repair/replace emergency dampers to reduce air leakage.** This was completed. New dampers will be installed at Seneca, so that new dampers work.

e. **Venturi – Pak to reduce particulate emissions by about 75%**. A Venturi-Pak was never tested at the Metro Plant. This system to reduce steady state emissions has been proven Indianapolis and other plants.

f. **Chemical precipitation to reduce mercury and heavy metal emissions**. This was never tested full scale at Metro. A pilot plant evaluation was done in the late 1980's. This process has worked full scale at Duluth WWTP for 9+ years.

Three of the six recommendations are working at Seneca. When the new dampers are installed, then 4 of the 6 recommendations will be in place and working at Seneca. Only the Venturi Pak and Chemical precipitation process will not have been installed. Thus, all of the proposed modifications are feasible and proven. These are not last minute recommendations, as all have been recommended prior to about 1995.

These modifications would have responded to the public concerns for: odor reduction, mercury and heavy metal reductions, and reduction of air pollutants. Also, it would have responded to the environmentalists' requests for a delay in construction of new incinerators. The modifications would not have responded to requests to switch from incineration to land application.

6. Emergency Damper

The Consent Degree states that "The Met's engineering consultants reaffirmed in February 1999 that only new incinerators would eliminate the emergency bypass emissions at issue in the case." This is true, but EPA is not requiring the demolition of other multiple hearth incinerators in Green Bay, Indianapolis, St. Louis, Palo Alto, Seneca and other plants because they have emergency dampers.

No apparent action was taken concerning the emergency damper after my memo in December 1998, in which I stated "The problem of by-passes from the emergency damper should be considered a correctable problem, rather than justification for a complete new facility".

In my understanding, the original EPA lawsuit concerned the "operation and maintenance" of the incinerators and the use of the bypass damper; not if there was an emergency damper or not. I reviewed what was said in the July 1999 Minneapolis Star and Tribune article which said:

> "... another set of charges alleges that Metro Plant staff members failed to maintain and operate the incinerators properly form 1995 to the present... Solem said the Metro Plant is one of the best in the nation. Rather than questioning the competency of Metro Plant staff, he said the EPA should look at its own advisers. "They {EPA} have a generation of kid engineers who've never worked with these kinds of systems and simply don't know how they operate" Solem said.
>
> Added Mondale: "It's impossible to comply with what EPA wants unless you want to risk the furnaces blowing up in the faces of your workers."....
>
> "We completely disagree with the representation that anything EPA has done is jeopardizing worker safety," said Mary McAuliffe, an attorney at the agency's regional office in Chicago. "That is absolutely incorrect."
>
> Lofton said he knows of no other sewage treatment plant that violates air-quality standards as often as the St. Paul plant....

Immediately after the EPA announced the lawsuit in July 1999, the amount of time the emergency damper was open decreased dramatically. The time (in minutes) the emergency damper was open each month in 1999 was as follows:

January	346 minutes,
February	65,
March	150,
April	252,
May	357,
June	605,
July	475, (EPA Lawsuit)
August	201,
September	90,
October	40,
November	55,
December	50.

The dramatic decrease in emergency damper open time after the lawsuit in July indicates that the problem could have been correct long ago; thus the EPA lawsuit may have been eliminated.

The citizens of other communities (Green Bay, Indianapolis, St. Louis, Palo Alto etc.) with multiple hearth incinerators are not having to demolish them and pay hundreds of millions of dollars for a new incinerator complex. The Consent Decree is unfair to the ratepayers of this community who will now have to fund a major capital project because of past incineration O&M practices at the Metro Plant.

7. Second guessing the Executive Branch.

EPA should have stated in the Federal Register what the ground rules (United States v. Cannons Eng'g Corp., and other laws) are for comments and objections during the public comment period.

Second guessing of the consultants, Met Council and EPA should be taken seriously, otherwise the request for public comments is not fair. Why request public comments, if second guessing is not allowed? It is not fair to cite all of these laws, after comments are received. I doubt that any non-lawyer would have any idea about what these laws mean. Citing all these laws in the final Consent Decree makes it appear that the requirement for the demolition of the existing system and construction of a new $200 million dollar complex was determined in advance and nothing can be done to change the course of action.

8. Incinerator Downtime

The existing incineration system has been described to the public and me in terms such terms as "broken electric toaster", "old rusted car", "on its last legs" etc. The existing facilities are more like an industrial electric power plant. Northern States Power two years ago stated in its web page:

> "At far less cost than new construction, NSP is renovating plants to add capacity, improve performance, extend operating lives, and use new fuels and technology."

Currently, Excel Energy (NSP) has four major power plants in the Twin City area, all which are as old if not older than the Metro Plant and no public plans for demolition of these power plants.

When an employee gainsharing program was stated last year, a group of 110 employees submitted various means to reduce incinerator and dewatering costs. The most interesting and important is:

> "Achieve goal of 89.3% incinerator utilization. Current service availability 80.3%. Expected savings of $125,000 per year".

This would decrease the downtime from about 10.2 to 5.36 weeks per year per incinerator and represents about a 45% decrease in downtime without any increase in capital or operating funds. Incinerator availability of about 90% (5.4 out of 6 incinerators) means to me, that the existing system is still very functional and not on its 'last legs'. With proper modifications, so incinerators could burn at design tonnage, 3 or 4 incinerators should be sufficient to process average daily loading. This would leave 2 or 3 incinerators for backup or in repair.

All the analogies to 'broken toasters', 'rusty old cars' and 'on the last legs' are not representative to me of the operating condition of the system based on a potential of about 90% incinerator availability.

9. Comparison to Indianapolis

In conclusion, I briefly want to give a comparison to one other city - Indianapolis.

In the early 1990's, I obtained budget quotes for two fluid bed incinerators to replace the multiple hearth incinerators built in the late 1930's and shut down in the early 1980's. The new incinerators could process increased loadings and to supplement the existing multiple hearth incinerators. One company was asked to provide preliminary diagrams to show the layout. These plans were given to both Master Plan and Facility Plan engineers. However, consultants & staff had various reasons to demolish the entire operating system: incinerator age, O&M cost, emergency dampers, modern technology, space constrictions, odor reduction etc. All of these reasons, I have objected to.

At a March 1999 meeting, concerning my proposed modifications, (in which every proposal was rejected) our consultant stated that Indianapolis (~250 mgd)_was evaluating the installation of new fluid bed incinerators. Indianapolis, which is privatized, has a sister company that manufactures fluid bed incinerators. Last year, I called Indianapolis to find out the results of their evaluation. They evaluated the demolition of their multiple hearth facility built in the mid-1920's, abandoned in the early 1970's and replacement with fluid bed incinerators, to supplement their existing facility. This is the same company that supplied me with quotes and drawings of how fluid bed incinerators could be installed where the abandoned 1930's incinerators are in the Metro Plant. Indianapolis had an inspection of the operating multiple hearth incinerators and a repair quote for repair, which was less than $3 million per incinerator.

Indianapolis elected not to demolish their abandoned incinerator 1920's facilities; instead, they will load-out excess sludge to landfill. In my December 1998 memo, I requested that alternate means to process peak loads be evaluated, which was not done. The Indianapolis O&M cost for the multiple hearth incinerators was very low. Indianapolis is not going to demolish the 1970's multiple heath incinerators because of reasons given to demolish the Metro Plant incinerators - emergency dampers, odor complaints, 25-year design life, mercury, heavy metals, incinerator age or O&M cost. They plan to inspect and evaluate the incinerators every 5 years. They have operated Venturi-Pak scrubber, which can reduce particulate emissions by about 75%, since the mid-1990's. Thus, it appears they will be able to operate their existing facilities to the maximum practical life, reduce particulate emissions to about 0.3 lb/dry ton, and thus keeping capital, O&M, life cycle costs low.

Summary

I give the comparison to Indianapolis to show that what I had proposed is feasible, practical, cost effective and being done at major cities with similar aged incinerators, which are meeting EPA standards. What I proposed would have satisfied the following 1) neighbors concerns for odor reduction, 2) environmentalists concerns for particulate, heavy metal and mercury emissions, 3) environmentalists requests to delay construct a new incineration complex, and 4) public concerns for sustainability and cost.

I (and possibly the Court & public) may have been misinformed or not informed about: 1) Actual incinerator repair costs, 2) Qualifications of persons conducting incinerator inspections, 3) How mechanical inspections were conducted, 4) Health risks associated with an upgraded incinerator verses a new incinerator, 5) Odor reduction by fluid bed incinerators, 6) Results of proposed process improvement modifications 6) Comparative O&M costs from other similar multiple hearth incinerator facilities, 7) Proven life span of multiple hearth incinerators and other items.
Because of these items, I request that the EPA and Court reconsider its requirement for the Met Council to construct a new $200 million dollar fluid bed incinerator complex, which many other cities with multiple hearth incinerators are not being required to do.

1747 Blue Bill Drive
St. Paul MN 55122

ALL FOR THE EARTH

October 16, 2001

Assistant Attorney General
Environmental and Natural Resource Division
US Dept. of Justice
PO Box 7611
Washington DC 20044-7611

Re: US v. Met. Council, Civil Action#99-CV-1105(D.Minn.)
DOJ Ref.#90-5-2-1-2243

In response to the Federal Register notice the following comments are submitted:

-The removal of the dry ESP provides less mercury reductions and environmental protections and are not in the public interest.

-The SEP project was originally budgeted, planned and applied for well prior to this case. There is no additional or supplemental environmental protections being provided the public.

-The court was defrauded by the representations made regarding the so-called supplemental nature of the environmental protections that these SEP's would provide. Trading one $1.6 million project for another of equal value that would have been spent regardless of this legal case provides no additional public benefit or environmental protections.

-The SEP is an integral part of the overall Consent Degree. These proposed changes effects and modifies the projects schedule, timeline, compliances and overall environmental protections listed in the Consent Degree. The attempt to limit public comment to only the SEP is undemocratic and unjust.

-If the overall goal is to reduce mercury emitted into the air, a simple and workable SEP is recommended by not burning the sewer sludge at all. Land application of the sludge as soil fertilizer would completely eliminate the emissions of mercury, lead and cadmium toxic particulates into the air. The public interest is best served by a SEP that mandates land applications of sludge as a soil fertilizer.

In our conversation you mentioned relating correspondence submitted by a Mr. Greenwood. Also, the notice mentions consultant reports and cost analysis. Complete copies of these documents is requested along with the relating FAA case file which we have been unable to obtain due to protections cited by the FOIA and/or this legal case. As you are hopefully aware, the Consent Degree's proposed incinerators, smokestacks, filters, and emissions points are being move over 1000 feet closer to the surrounding neighborhoods. The public health risks concerning these issues is of great importance.

OCT 19

Finally, clarifications are needed regarding two points. First, the MPCA as the RGU for this facility has publicly denied any involvement in the negotiations or drafting of the Consent Decree. The State of Minnesota is responsible for the Met. Council. As such it would appear to have a conflict of interest. Please let us know the extent of any involvement the Minnesota Attorney General's office, the MPCA or it's representatives have had in this case.

Secondly, you stated in our prior conversation that the Consent Degree does not require the Met. Council to incinerate sewer sludge. The MPCA, MN Attorney General's office and the Met.Council have all testified publicly to the contrary. A direct written response from the USEPA and DOJ to this crucial environmental public health issue is respectfully requested for the record. The information and clarifications requested are required to provide informed public comment. If we can be of any assistance please contact us at your convenience.

Sincerely,

John Westley
Director-AFTE

Cc: Judge Donovan Frank
Gary Leistico

Earth Protector, Inc.

622 Lowry Avenue North
Minneapolis, MN 55411-1441
612/522-9433
Leslie@EarthProtector.org

Protecting the Earth since 1983.

October 16, 2001

Assistant Attorney General
Environmental and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Washington, DC 20044-7611

RE: United States v. Metropolitan Council, Civil Action No. 99-CV-1105 D. Minn.) and DOJ Reference Number 90-5-2-1-2243.

Dear Sir or Madam:

Earth Protector was formed in 1983 to protect the air, water and land for use by future generations. One of our activities is the review of permits proposed by various governmental agencies.

These comments are in response to the notice in the Federal Register, Vol. 66, No. 180, Monday, September 17, 2001 for a proposed amendment to a Consent Decree previously approved and entered by the Court in the Case referenced above.

The Metropolitan Council should not have gotten credit for installing an electrostatic precipitator (ESP) as a SUPPLEMENTAL ENVIRONMENTAL PROJECT (SEP) because they had previously agreed to install such a device in their permit application dated January 14, 1999 (excerpt attached, page 2-4 and schematic on page 2-8). They cannot now substitute a fabric filter for the ESP and take it as a SEP.

They can install the fabric filter as a preferred air pollution control device but they cannot get credit for it as a SEP. There are many SUPPLEMENTAL ENVIRONMENTAL PROJECTS that we would find acceptable and we look forward to being part of the discussions to determine the appropriate one, or ones, that would total the $1.6 million they are required to spend as part of the settlement.

Earth Protector has followed the activities and violations by the Metropolitan Council from the time they improperly installed a groundwater pump out system, illegally dumped their ash in South Dakota to the times they deliberately opened the emergency dampers on their incinerators in order to purge their system of PM10 polluted air emissions in a PM10 non attainment area. We believe that an investigation should ensue that would determine who was responsible for ordering the emergency dampers opened and used as a pollution control device, and they should be prosecuted to the full extent of the law.

The Metropolitan Council has deceived the public, Federal Court, Department of Justice and the U.S. Environmental Protection Agency, by trying to take credit for the ESP as a SEP. Now, just a few short weeks after getting their permit approved by the Minnesota Pollution Control Agency, they are proposing to change their ESP to a fabric filter and take credit for the fabric filter as SUPPLEMENTAL ENVIRONMENTAL PROJECT. We find this unacceptable.

While Earth Protector does not object to the use of a fabric filter in place of the ESP, we do object to the ESP, or the fabric filter, being used as credit for a SUPPLEMENTAL ENVIRONMENTAL PROJECT when they were going to install it anyway, according to their Permit Application (excerpt attached).

Thank you for the opportunity to comment on this very important matter.

Sincerely,

Leslie Davis
President

ORIGINAL

cc: Ms. Mary McAuliffe
U.S. Environmental Protection Agency (Region 5)
77 West Jackson Boulevard
Chicago, IL 60604
312/886-6237

Mr. Friedrich Siekert
Office of the United States Attorney for the District of Minnesota
.S. Courthouse - Room 600
300 South Fourth Street
Minneapolis, MN 55415
612/664-6600

Mr. John Westley
All For The Earth
1747 Blue Bill Drive
Eagan, MN 55122

Judge Donovan W. Frank
United States District Court
Warren E. Burger Federal Building
316 N. Robert Street
St. Paul, MN 55101

COPY

Air Emission Permit Amendment Application

Metropolitan Wastewater Treatment Plant
Solids Processing Improvement Project

Project No. 970300

Submitted by:

Metropolitan Council Environmental Services

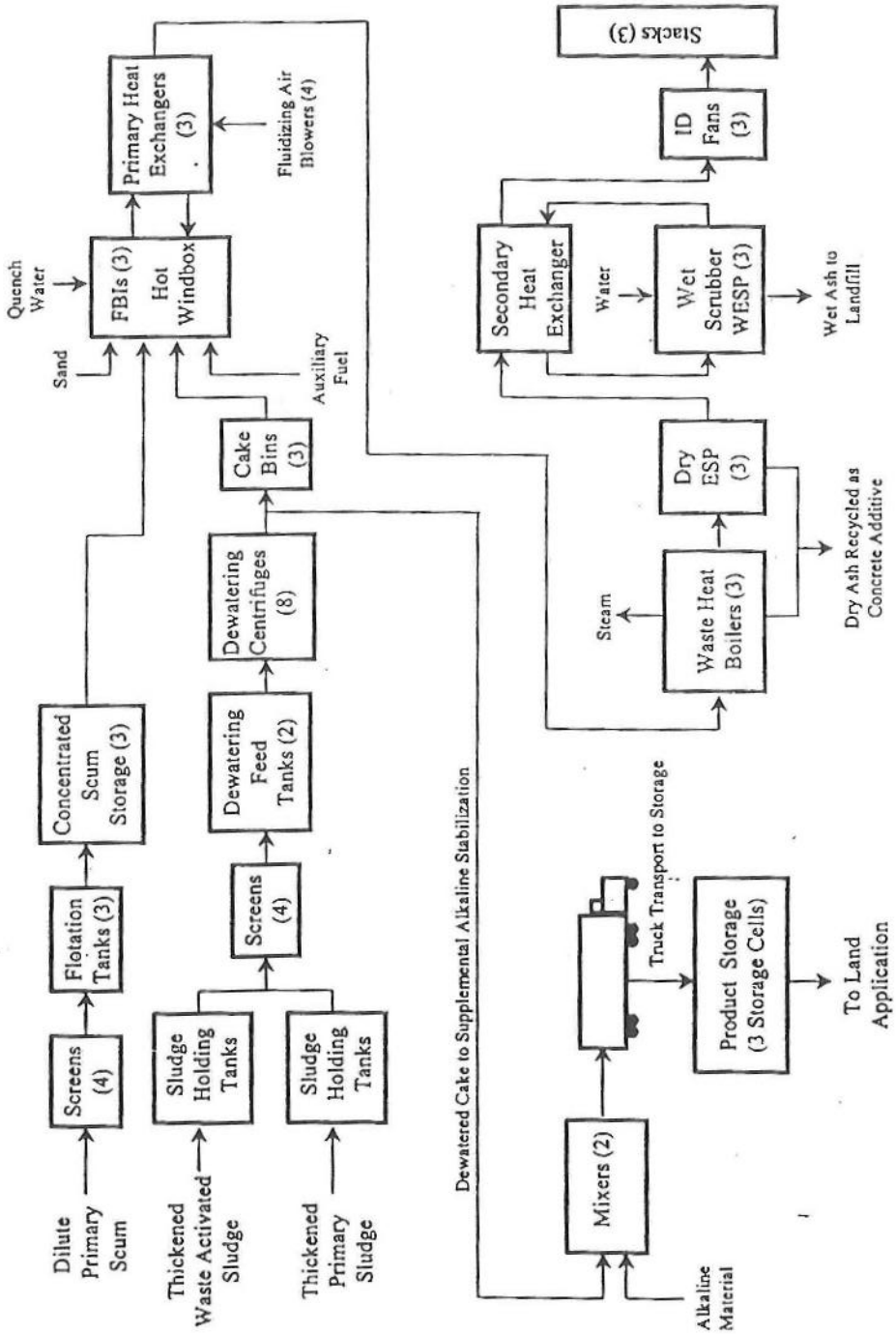
Metropolitan Council
Working for the Region, Planning for the Future

January 14, 1999

Prepared by:

Earth Tech, Inc.
in association with
CH2M Hill
RCM Associates, Inc.
Richardson, Richter and Associates, Inc.

Figure 2-1
Solids Processing Flow Diagram



1. The windbox, located at the bottom of the fluidized bed sewage sludge incinerator, provides a chamber for distribution of fluidizing air into the fluidizing zone.

2. The fluidizing zone, which contains a sand bed, is separated from the windbox by an air distribution plate. The sand is fluidized by the fluidizing air, which provides the turbulence necessary to assist efficient combustion. The sand provides a source of heat to ignite the sludge particles and remove heat from the sludge flame, and assists in stabilizing combustion. The sand also helps to break the sludge particles into smaller particles. In addition, the sand bed stores heat when the fluidized bed sewage sludge incinerator is shut down, allowing shutdowns of up to two days without having to reheat the fluidized bed sewage sludge incinerator to restart combustion.

3. The freeboard, which is the zone above the fluidized bed, provides sufficient residence time for the combustion to be completed. It also allows sand and larger sludge particles to disengage from the combustion zone and to fall back into the fluidized bed. The hot combustion gases or off-gases, together with fine ash, exit the top of the freeboard.

The temperature range in the fluidizing zone is typically 1,350-1,450° F, whereas the freeboard temperature range is typically 1,500-1,550° F. The fluidized bed and freeboard zones act as afterburners because of the bed and freeboard temperatures and the long residence times (five to seven seconds) in the freeboard. Heat is recovered from the hot off-gases and can be used to preheat the fluidizing air and/or produce steam. To preheat the combustion air, a gas-to-air heat exchanger is provided at the outlet of the freeboard. A fluidizing air blower compresses the fluidizing air and conveys it through the heat exchanger and into the windbox. Preheating fluidizing air reduces the need for auxiliary fuel.

Following the gas-to-air heat exchanger is a waste heat recovery boiler. The waste heat recovery boiler cools the off-gases and produces steam from the recovered heat. This steam will be used for building heating and to produce electricity in a new turbine generator.

The air pollution control equipment removes particulates, heavy metals, and acid gases from the off-gases. The air pollution control train begins after the waste heat boiler and will consist of a dry electrostatic precipitator, a wet scrubber, and a wet electrostatic precipitator (WESP).

Particulate removal will be done by the waste heat boiler, the ESP, the wet scrubber, and the WESP. The waste heat boiler removes particulate matter ten micrometers and larger. The ESP and the wet scrubber remove particulates one micrometer and larger, and the WESP removes particulate matter less than one micrometer. Most types of heavy metals present in exhaust gases will exist as particulates and will be removed by the particulate control equipement. Some metals such as mercury can be present in the exhaust gases as elemental vapor, condensible oxides, and condensed salts. Existing data shows that up to 70 percent of the total mercury present in the flue gases would exist as condensible oxides and salts that would be controlled by the WESP.

Acid gases (HCl, H_2SO_4 SO_2) are removed in the wet scrubber. Some NO_x is also expected to be removed in the wet scrubber.

The exhaust gases will be discharged through a stack located at the north end of the FBI building. Each incinerator will have its own stack housed inside a support stack. Because of the facility's proximity to Holman Field Airport across the river, the Federal Aviation Administration restricts the height of the stack. The stack height will be 105 feet. The incinerators will not be equipped with emergency relief

MINNESOTA POLLUTION CONTROL AGENCY
AIR QUALITY DIVISION
520 LAFAYETTE ROAD
ST. PAUL, MN 55155-4194

PERMIT APPLICATION FORM **GI-02**

PROCESS FLOW DIAGRAM

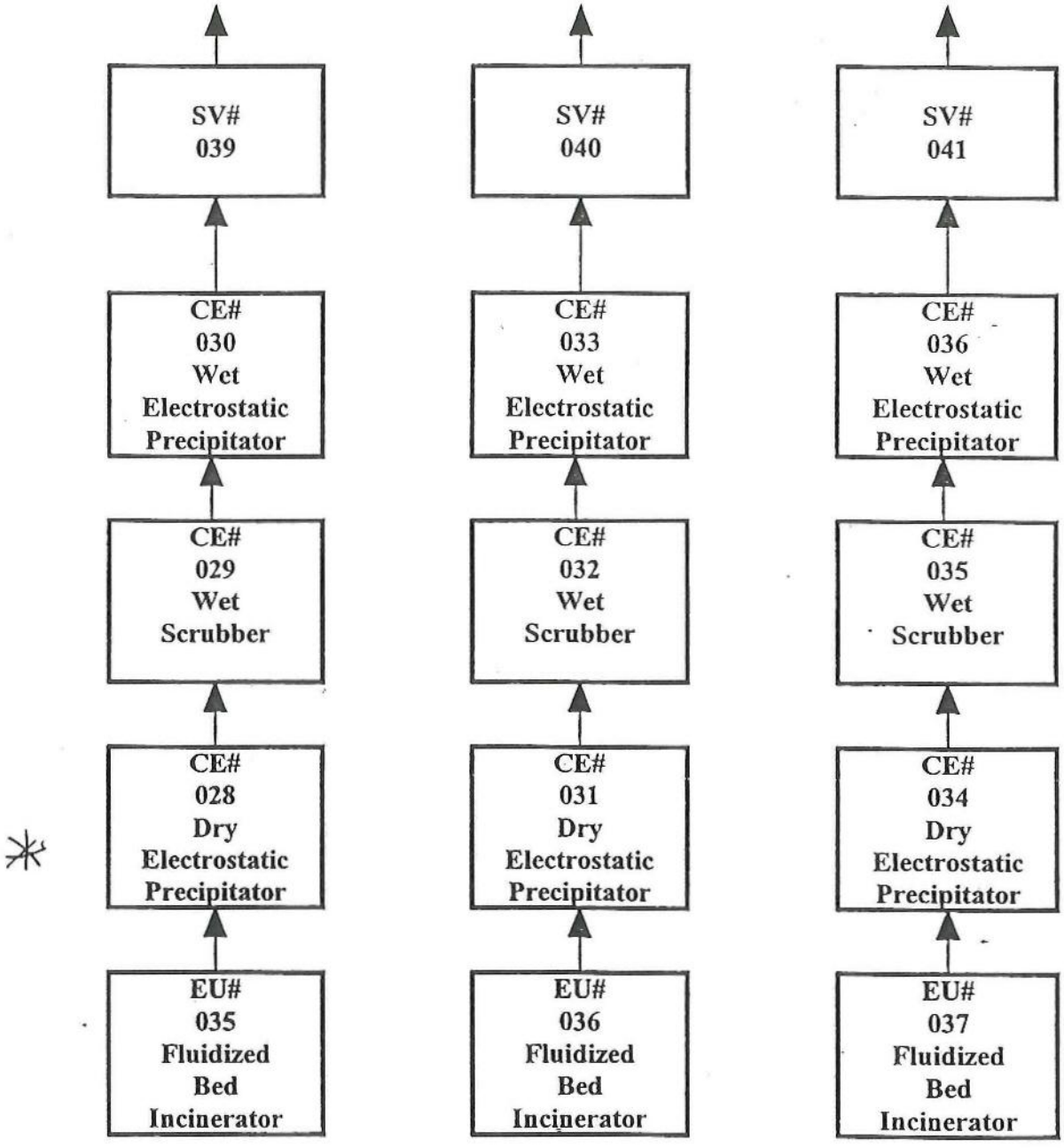
12/20/94

1) AQD Facility ID No.: **12300053**

2) Facility Name: **Metropolitan Wastewater Treatment Plant**

3) Flow Diagram: **Fluidized Bed Sewage Sludge Incinerators Process Flow Diagram**

See the following pages for Ash Handling System and Alkaline Stabilization System Process Flow Diagrams.



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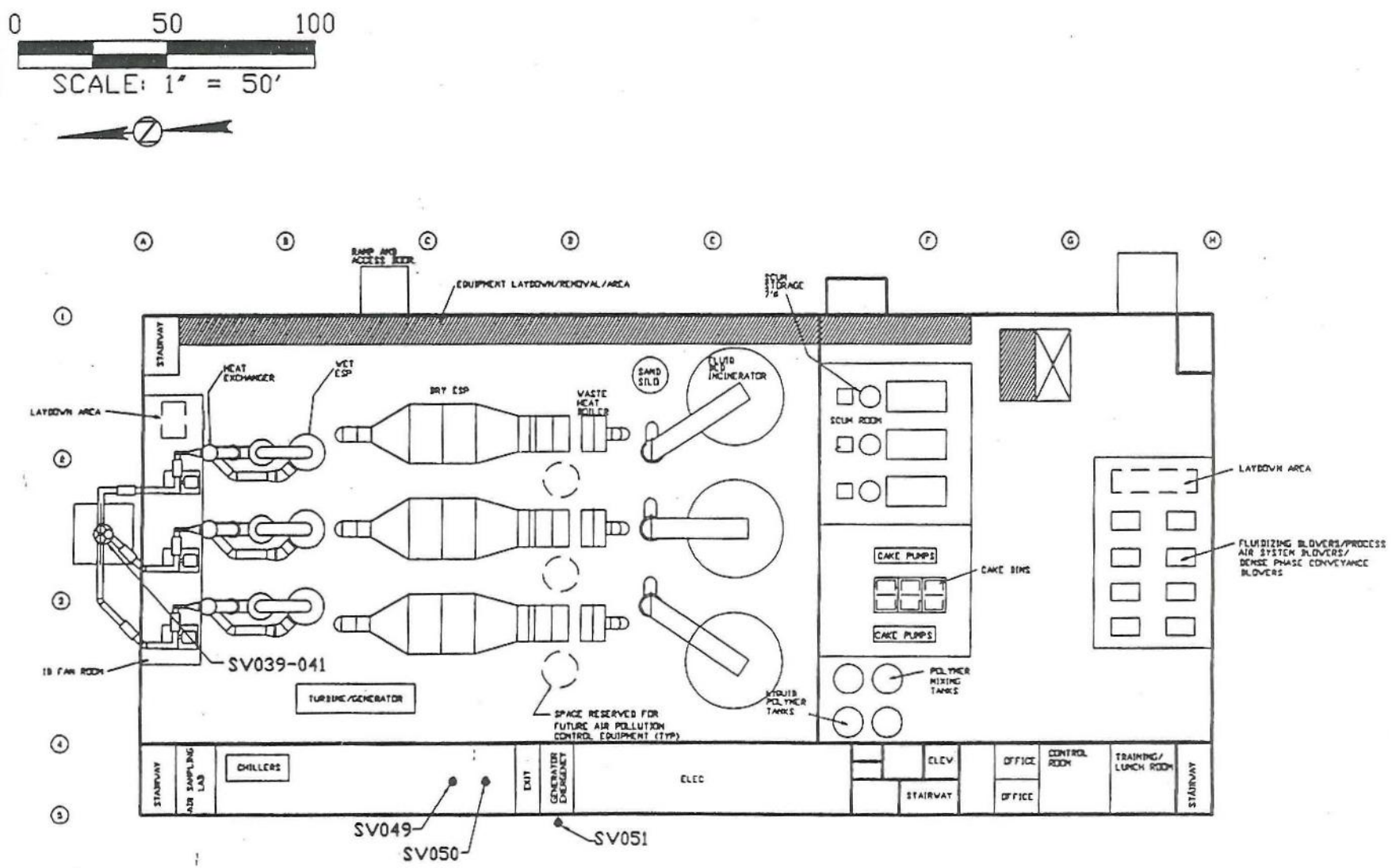

Metropolitan Council
Environmental Services

SOLIDS MANAGEMENT BUILDING
Metro Plant Solids Processing Improvements

GI-03: Figure 2

Exhibit C

DORSEY & WHITNEY LLP

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SHANGHAI

November 5, 2001

VIA FACSIMILE AND OVERNIGHT DELIVERY

Mary T. McAuliffe, Esq.
Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Re: Metropolitan Council Supplemental Environmental Project

Dear Mary:

We appreciate the opportunity to respond to comments and to explain in more detail all of the reasons why the Metropolitan Council's (the "Council") proposed modifications to improve upon the existing Supplemental Environmental Project ("SEP"), already approved by the District Court as Appendix C to the Consent Decree, meets the standard for an appropriate and environmentally beneficial project.

Additional Environmental Benefits from Revised SEP

First, we believe there is no dispute that the proposed modification in the SEP, the matter which is really at issue here, provides additional environmental benefits beyond the already approved SEP. The SEP as revised will provide significantly enhanced mercury reduction from the Metropolitan Wastewater Treatment Plant ("Metro Plant"). Specifically, the proposed alternative technology uses fabric filters in the air pollution control train of the fluidized bed incinerators. These will significantly increase the reduction of mercury. Preceded by carbon injection, fabric filters should provide up to 90 percent mercury removal, compared with 70 percent for the dry Electrostatic Precipitation ("ESP") technology currently approved as the SEP. Moreover, these fabric filters provide at least the same and probably even slightly better particulate removal capability as the replaced dry ESP technology, which was estimated to result in a reduction of approximately 3.5 tons of PM/PM-10 per year beyond what is required by regulation to meet emission limitations. The fabric filters perform better because they are less

sensitive to fluctuations in gas stream conditions, variations in particle size or variations in physical parameters, such as the resistivity of particulate matter.

The comments received in response to the proposed change in SEP do not challenge these conclusions. Mr. Greenwood's comments do not address the change in technology at all. Rather, they raise the same issues as he raised in his original comments on the Consent Decree, namely, that he believes the Council should not use fluidized bed technology at all but should modify the multiple hearth incinerators. This issue was fully addressed in response to his original comments and is not relevant to the proposed action in this matter. Mr. Greenwood makes no suggestion that use of fabric filters as an alternative to dry ESP would be less environmentally beneficial.

The comments of the All for the Earth organization with regard to this issue indicate a misunderstanding of the proposed action. This organization states: "The removal of the dry ESP provides less mercury reductions and environmental protections and are not in the public interest." The proposed SEP change does not remove dry ESP technology without doing anything in the alternative. On the contrary, the proposed change in the SEP would substitute fabric filter technology for dry ESP technology and will actually provide greater mercury reduction and as good or better particulate removal. Most of the remaining comments by the All for the Earth organization address that organization's belief that yet another alternative solids processing technology should be used at the Metro Plant, namely, land application of sludge rather than incineration and beneficial reuse. To the extent that this might have been a legitimate issue in response to the original Consent Decree notice, it should have been raised in the original comment period, as was done by Mr. Greenwood. It is not relevant to the current matter, which simply concerns a change in the proposed SEP for the project.

While raising other objections, the organization Earth Protector, Inc. does not question the advantages of using fabric filter technology rather than dry ESP technology. In fact, the organization explicitly states that "Earth Protector does not object to the use of fabric filter in place of the ESP." (We note that this organization does not raise an objection to the use of fluidized bed technology.)

The SEP Project is not necessary to meet permit requirements

Although this issue was not raised by the commenters, we understand that some concerns have been raised within EPA about whether the previously approved dry ESP technology, or its proposed fabric filter replacement, are necessary to meet regulatory requirements. In evaluating the pollution control train needs for a fluidized bed incinerator, the Council's engineers determined that a venturi scrubber along with wet ESP technology would be sufficient to meet all existing regulatory requirements. During those evaluations, the Council also considered the

effects of adding additional removal capacity through the use of dry ESP technology. However, the use of dry ESP technology was always considered in the context of going above and beyond regulatory requirements. Correspondence and attachments from the Council's consultant, CH2MHill, written contemporaneously with the Settlement Conference of October 1999, clearly show that use of dry ESP technology was not necessary to meet regulatory standards.[1] See Attachment 1 (CH2MHill Letter of October 15, 1999). Consequently, use of dry ESP was never a legal requirement but rather was simply an option the Council might, or might not, decide to pursue. Likewise, the use of fabric filter technology as a substitute for dry ESP technology would not be a legal requirement except as a SEP commitment in the Consent Decree.

Commitment to SEP Project

Finally, we are very concerned about statements in the comments from All for the Earth and Earth Protector, Inc. that both the original and proposed substitute SEP are not eligible for SEP status because the dry ESP technology was, in some manner, "committed to" prior to the Council's commitment to the SEP in the Consent Decree. Mr. Davis' suggestion the Council had "previously agreed" to install the dry ESP in January 1999 is simply not correct.

It is important to keep in mind that the Council was never required, obligated or committed to the projects in the original or revised SEP by any federal, state, or local law, regulation, requirement, injunctive order, or other existing settlement or decree. In evaluating the solids processing needs of the Metro Plant, the Council studied a range of options including: upgrade of the existing multiple hearth incinerators, replacement of existing incinerators with fluidized bed incinerators, and land application of sludge rather than incineration. The ultimate option to be chosen was widely discussed and controversial. The comments received in response to the original Consent Decree and this proposed modification, which continue to urge different options ranging from upgrade of the existing incinerators to the use of land application, show that this was and continues to be an issue of considerable concern to some members of the public.

To be perfectly clear, the Council was neither committed to nor required by law to install fluidized bed incinerators, let alone any particular pollution control train for such a facility, when the EPA issued its notice of violation for the plant in July 1997. The Council first evaluated the use of fluidized bed incinerators (among other alternatives) at the Metro Plant in its Master Plan, completed in June 1997. In fact, Council staff continued to evaluate and re-evaluate the concept of fluidized bed incinerators through December 1998. After analysis of various options for addressing the plant's solids-processing needs, Council staff in 1999 recommended the selection

[1] The wet ESP, in contrast, was necessary complement to the fluidized bed incinerator.

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of fluidized bed incinerator technology and received initial design authorization from the Council governing board. Council staff directed its engineer for the initial design to include the best available technology for air pollution control with the understanding that this was going beyond the regulatory requirements.

As part of the process that the Council uses for major projects such as the Metro Plant solids processing project, the staff submitted a permit application in order to assure that the project in the form recommended by the staff, if ultimately approved by the Council governing board, would also meet with approval from the regulators, and could proceed relatively promptly. In accordance with the engineering recommendations, that submittal proposed the use of fluidized bed incinerators using venturi scrubbers, along with wet ESP technology. It also included the use of dry ESP technology, which went beyond regulatory requirements. The permit amendment application that the Council submitted to the Minnesota Pollution Control Agency in January 1999 reflects the alternative under consideration as of that date; it does not represent any type of obligation or commitment. Notably, the final air permit application was not submitted until March 2001 and could have been changed if the Council had not committed to dry ESP in the Consent Decree. At no time prior to October 1999 had the Council governing board made the final decision to proceed with construction of the fluidized bed technology.

As part of the settlement process, the EPA required the Council to demonstrate that construction and installation of new fluidized bed incinerators was a legitimate alternative that would address the concerns that the EPA had raised about the existing multiple hearth incinerators. The complete absence of any formal commitment to the fluidized bed incinerator project until it became part of the Council's settlement with EPA is not a mere technicality. As a government entity, the Council's administrative staff operates within a decisional framework that requires the Council governing board itself to approve projects under well-established formal procedures. The staff explores, evaluates and proposes a variety of projects, but always subject to final approval and funding by the governing board. Such approval is not a foregone conclusion. It is not uncommon for projects in various stages of implementation to be modified or discontinued completely due to a shift in priorities or cost-cutting mandates.

In fact, approval of the fluidized bed incinerator project took place in the context of an effort in the Wastewater Services unit to reduce capital costs by ten percent. The fluidized bed incinerator project was one of those projects targeted for possible cost reduction, and a potential cost reduction measure would have been removal of the dry ESP technology, which was not required for regulatory compliance. Several major projects were, in fact, deferred in order to meet the ten percent reduction goal.

The EPA and Council staff did not agree on use of fluidized bed incinerators as a resolution to the dispute until the conclusion of the Settlement Conference on October 5, 1999. The Council's governing board had not previously made any commitment to construct the fluidized bed incinerators, and committed to the construction of incinerator project only as part of the settlement. Similarly, the Council was evaluating the option of adding dry ESP technology at the plant to improve emission reduction beyond regulatory requirements but had not committed to that addition. The use of dry ESP technology also was plainly subject to final approval of the Council governing board, and most importantly, not immune from the 10 percent capital costs reduction effort in the Wastewater Services unit . Until final and formal approval by the Council governing board, the dry ESP was not an obligation or commitment. As the contemporaneous correspondence from CH2MHill shows, the dry ESP was not considered a part of the incinerator compliance measure, nor was it necessary to meet regulatory standards.

Legal Standards for SEP Projects

The definition and key characteristics of a SEP are defined in the agency's Supplemental Environmental Projects Policy as:

> *environmentally beneficial projects* that a respondent agrees to undertake *in settlement of an enforcement action* but which the respondent is *not otherwise legally required to perform.*

See Attachment 2 (SEP Policy of May 1, 1998) (emphasis added).

The SEP Policy breaks down the three standards for evaluating the eligibility of a project:

1. Environmentally Beneficial: a project is environmentally beneficial if it improves, protects or reduces risks to public health or the environment at large;

2. In Settlement of An Enforcement Action: a project is in settlement of an enforcement action if the EPA has the opportunity to help shape the scope of the project and the project is not commenced until after the EPA has identified a violation;

3. Not Otherwise Legally Required To Perform: a project is not otherwise legally required if it is not required by any federal, state, or local law or regulation. SEPs cannot include: (1) actions the respondent is likely to be required to perform as injunctive relief in the instant case; (2) injunctive relief in another legal action the EPA or other regulatory agency could bring; (3) part of an existing settlement or order in another legal action; or (4) required by state or

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local requirements. EPA guidance also states that if a project is something that "the company would do anyway" it would provide no supplemental or additional benefit to the environment.

See Attachment 2 at 5-6: Attachment 3 at 4 (SEP Policy Q&A of January 1999).

Both the SEP as originally proposed and approved by EPA, as well as the recent modification proposed by the Council and evaluated by the EPA, meet these standards. First, the Council already has demonstrated to EPA that adding dry electrostatic precipitators to the fluidized bed incinerators will provide an environmental benefit to the public because of enhanced particulate removal. Substituting fabric filter technology for the dry ESP will result in even greater benefits, particularly an increased reduction of mercury. See Attachment 4 (CH2MHill Letter of March 7, 2001).

Second, the dry ESP (as well as the proposed modified SEP) was in settlement of an enforcement action. The chronology of the project development shows that the EPA had the opportunity to shape the scope of the project because the Council had not committed to undertake the dry ESP project or commenced work on it before the notice of violation issued and negotiations ensued. Although the project was identified in planning documents and the initial permit amendment application, it was not something that the Council "would do anyway" because the dry ESP was not necessary to meet regulatory standards, and was clearly threatened by the ten percent cost reduction to which the fluidized bed incinerator project was potentially subject.

Finally, neither the dry ESP nor the proposed modification were required by any state, federal or local laws, regulations or requirements, injunctive orders, or other settlements or decrees. Moreover, neither project was likely to be required because neither was a necessary component of the fluidized bed incinerators. Based on the worst case calculations of its technical consultants, the Council was confident that the fluidized bed incinerators using venturi scrubbers along with wet ESP technology would meet all applicable emission limits.

Because the dry ESP was not required to achieve compliance, offered an enhanced particulate removal, and provided the required nexus with the objectives of the Clean Air Act, the EPA properly accepted the project as a SEP. The same holds true for the proposed modification. The Council has proceeded in accordance with the Consent Decree and only suggested the modification to the SEP when it became apparent that substitution of technology could achieve an even greater environmental benefit.

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In closing, we know that EPA is aware that the Council has contractual commitments that require a resolution of the use of substitute technology by November 10. The Council would like to proceed with the substitution of technology rather than revert to the original SEP, provided the parties can agree on a timeline for resolution. We look forward to discussing this with you further in our telephone conference on Monday, November 5.

Sincerely,

Robert E. Cattanach

Attachments
cc: Mark Thompson, Esq.
Randall Stone, Esq.
Rebecca Flood
William Moore
Erik Hardin

CH2M HILL
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55121-1200
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October 15, 1999

Mr. Bill Moore
General Manager
MCES
Mears Park Centre
230 East Fifth Street
St. Paul, MN 55101-1633

Subject: MWWTP Solids Processing Improvements Project
MCES Project No. 970300

Dear Bill:

As we have discussed, to meet anticipated regulatory emissions required to allow the planned MWWTP Solids Processing Improvements Project (Project) to be permitted, a base air pollution control train comprised of a wet scrubber followed by a wet electrostatic precipitator (WESP) is required for removing particulate matter (both PM and PM10) from the flue gasses emitted from the fluidized bed incinerators. The wet scrubber will primarily remove acid gasses while the WESP will remove particulate matter and heavy metals that exist as condensible oxides and salts. However, MCES currently plans to include a dry electrostatic precipitator (ESP) ahead of the wet scrubber and WESP which will provide enhanced particulate removal. Projected emissions of particulate matter (both PM and PM10) are shown on the attached table and the approach used for developing those projections is described on the following two pages.

The additional capital cost to MCES for providing enhanced particulate removal obtained by adding the ESP to the APC train is approximately $4.9M (estimated in 1998 dollars).

In addition, as you are aware, MCES's ability to implement the Project by mid-2004 and decommission the existing Multiple Hearth Incinerators is dependent upon regulatory approval of the Facility Plan and the Air Emission Permit Amendment in early 2000. For your information, attached is an overall schedule for implementing the schedule (with supporting detail schedules) that identifies the required approval dates.

If you have any questions relative to this information, please give me a call.

Attachment
1

Sincerely,

CH2M HILL

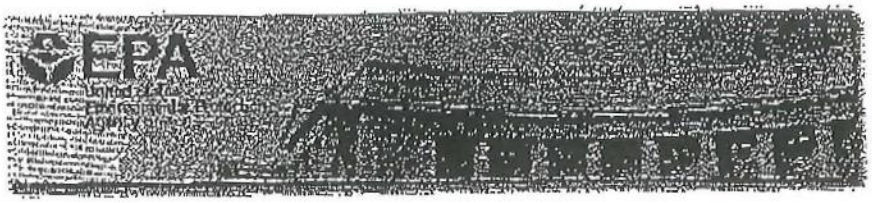
Dave Raby
Project Manager

MSP\Document2
c: Mr. Bryce Pickart

Fluidized Bed Incinerator (FBI)
PM/PM_{10} Emissions Performance Comparison

Pollutant	NSPS Subpart O (lb/dry ton)	PM_{10} SIP (lb/dry ton)	Baseline Expected Emissions (lb/dry ton)	Supplemental Environmental Project Expected Emissions (lb/dry ton)
PM	1.3	—	0.46	0.28
PM_{10}	—	1.2	0.46	0.28

The baseline air pollution control equipment wet scrubber and wet electrostatic precipitator will meet current NSPS and PM_{10} SIP performance criteria. The addition of a dry electrostatic precipitator will further decrease the expected emissions by 40 percent compared to the baseline air pollution control equipment.



EPA SUPPLEMENTAL ENVIRONMENTAL PROJECTS POLICY

Effective May 1, 1998

A. INTRODUCTION

1. Background

In settlements of environmental enforcement cases, the U.S. Environmental Protection Agency (EPA) requires the alleged violators to achieve and maintain compliance with Federal environmental laws and regulations and to pay a civil penalty. To further EPA's goals to protect and enhance public health and the environment, in certain instances environmentally beneficial projects, or Supplemental Environmental Projects (SEPs), may be part of the settlement. This Policy sets forth the types of projects that are permissible as SEPs, the penalty mitigation appropriate for a particular SEP, and the terms and conditions under which they may become part of a settlement. The primary purpose of this Policy is to encourage and obtain environmental and public health protection and improvements that may not otherwise have occurred without the settlement incentives provided by this Policy.

In settling enforcement actions, EPA requires alleged violators to promptly cease the violations and, to the extent feasible, remediate any harm caused by the violations. EPA also seeks substantial monetary penalties in order to deter noncompliance. Without penalties, regulated entities would have an incentive to delay compliance until they are caught and ordered to comply. Penalties promote environmental compliance and help protect public health by deterring future violations by the same violator and deterring violations by other members of the regulated community. Penalties help ensure a national level playing field by ensuring that violators do not obtain an unfair economic advantage over their competitors who made the necessary expenditures to comply on time. Penalties also encourage regulated entities to adopt pollution prevention and recycling techniques in order to minimize their pollutant discharges and reduce their potential liabilities.

Statutes administered by EPA generally contain penalty assessment

Attachment 2

This is a settlement Policy and thus is not intended for use by EPA, defendants, respondents, courts or administrative law judges at a hearing or in a trial. Further, whether the Agency decides to accept a proposed SEP as part of a settlement, and the amount of any penalty mitigation that may be given for a particular SEP, is purely within EPA's discretion. Even though a project appears to satisfy all of the provisions of this Policy, EPA may decide, for one or more reasons, that a SEP is not appropriate (e.g., the cost of reviewing a SEP proposal is excessive, the oversight costs of the SEP may be too high, the defendant/respondent may not have the ability or reliability to complete the proposed SEP, or the deterrent value of the higher penalty amount outweighs the benefits of the proposed SEP).

This Policy establishes a framework for EPA to use in exercising its enforcement discretion in determining appropriate settlements. In some cases, application of this Policy may not be appropriate, in whole or part. In such cases, the litigation team may, with the advance approval of Headquarters, use an alternative or modified approach.

B. DEFINITION AND KEY CHARACTERISTICS OF A SEP

Supplemental environmental projects are defined as **environmentally beneficial projects** which a defendant/respondent agrees to undertake **in settlement of an enforcement action,** but which the defendant/respondent is **not otherwise legally required to perform.** The three bolded key parts of this definition are elaborated below.

"Environmentally beneficial" means a SEP must improve, protect, or reduce risks to public health, or the environment at large. While in some cases a SEP may provide the alleged violator with certain benefits, there must be no doubt that the project primarily benefits the public health or the environment.

"In settlement of an enforcement action" means: 1) EPA has the opportunity to help shape the scope of the project before it is implemented; and 2) the project is not commenced until after the Agency has identified a violation (e.g., issued a notice of violation, administrative order, or complaint).[2]

"Not otherwise legally required to perform means" the project or activity is not required by any federal, state or local law or regulation. Further, SEPs cannot include actions which the defendant/respondent is likely to be required to perform:

(a) as injunctive relief[3] in the instant case;

(b) as injunctive relief in another legal action EPA, or another regulatory agency could bring;

(c) as part of an existing settlement or order in another legal action; or,

(d) by a state or local requirement.

SEPs may include activities which the defendant/respondent will become legally obligated to undertake two or more years in the future, if the project will result in the facility coming into compliance earlier than the deadline. Such "accelerated compliance" projects are not allowable, however, if the regulation or statute provides a benefit (e.g., a higher emission limit) to the defendant/respondent for early compliance.

Also, the performance of a SEP reduces neither the stringency nor timeliness requirements of Federal environmental statutes and regulations. Of course, performance of a SEP does not alter the defendant/respondent's obligation to remedy a violation expeditiously and return to compliance.

C. LEGAL GUIDELINES

EPA has broad discretion to settle cases, including the discretion to include SEPs as an appropriate part of the settlement. The legal evaluation of whether a proposed SEP is within EPA's authority and consistent with all statutory and Constitutional requirements may be a complex task. Accordingly, this Policy uses five legal guidelines to ensure that our SEPs are within the Agency's and a federal court's authority, and do not run afoul of any Constitutional or statutory requirements.[4]

1. A project cannot be inconsistent with any provision of the underlying statutes.

2. All projects must advance at least one of the objectives of the environmental statutes that are the basis of the enforcement action and must have adequate nexus. Nexus is the relationship between the violation and the proposed project. This relationship exists only if:

a. the project is designed to reduce the likelihood that similar violations will occur in the future; or

b. the project reduces the adverse impact to public health or the environment to which the violation at issue contributes; or

c. the project reduces the overall risk to public health or the

environment potentially affected by the violation at issue.

Nexus is easier to establish if the primary impact of the project is at the site where the alleged violation occurred or at a different site in the same ecosystem or within the immediate geographic[5] area. Such SEPs may have sufficient nexus even if the SEP addresses a different pollutant in a different medium. In limited cases, nexus may exist even though a project will involve activities outside of the United States.[6] The cost of a project is not relevant to whether there is adequate nexus.

3. EPA may not play any role in managing or controlling funds that may be set aside or escrowed for performance of a SEP. Nor may EPA retain authority to manage or administer the SEP. EPA may, of course, perform oversight to ensure that a project is implemented pursuant to the provisions of the settlement and have legal recourse if the SEP is not adequately performed.

4. The type and scope of each project are defined in the signed settlement agreement. This means the "what, where and when" of a project are defined by the settlement agreement. Settlements in which the defendant/respondent agrees to spend a certain sum of money on a project(s) to be defined later (after EPA or the Department of Justice signs the settlement agreement) are not allowed.

5. a. A project cannot be used to satisfy EPA's statutory obligation or another federal agency's obligation to perform a particular activity. Conversely, if a federal statute prohibits the expenditure of federal resources on a particular activity, EPA cannot consider projects that would appear to circumvent that prohibition

b. A project may not provide EPA or any federal agency with additional resources to perform a particular activity for which Congress has specifically appropriated funds. A project may not provide EPA with additional resources to perform a particular activity for which Congress has earmarked funds in an appropriations committee report.[7] Further, a project cannot be used to satisfy EPA's statutory or earmark obligation, or another federal agency's statutory obligation, to spend funds on a particular activity. A project, however, may be related to a particular activity for which Congress has specifically appropriated or earmarked funds.

c. A project may not provide additional resources to support specific activities performed by EPA employees or EPA contractors. For example, if EPA has developed a brochure to help a segment of the regulated community comply with environmental requirements, a project may not directly, or indirectly, provide additional resources to revise, copy or distribute the brochure.

d. A project may not provide a federal grantee with additional funds to perform a specific task identified within an assistance agreement.

D. CATEGORIES OF SUPPLEMENTAL ENVIRONMENTAL PROJECTS

EPA has identified seven specific categories of projects which may qualify as SEPs. In order for a proposed project to be accepted as a SEP, it must satisfy the requirements of at least one category plus all the other requirements established in this Policy.

1. Public Health

A public health project provides diagnostic, preventative and/or remedial components of human health care which is related to the actual or potential damage to human health caused by the violation. This may include epidemiological data collection and analysis, medical examinations of potentially affected persons, collection and analysis of blood/fluid/ tissue samples, medical treatment and rehabilitation therapy.

Public health SEPs are acceptable only where the primary benefit of the project is the population that was harmed or put at risk by the violations.

2. Pollution Prevention

A pollution prevention project is one which reduces the generation of pollution through "source reduction," i.e., any practice which reduces the amount of any hazardous substance, pollutant or contaminant entering any waste stream or otherwise being released into the environment, prior to recycling, treatment or disposal. (After the pollutant or waste stream has been generated, pollution prevention is no longer possible and the waste must be handled by appropriate recycling, treatment, containment, or disposal methods.)

Source reduction may include equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, inventory control, or other operation and maintenance procedures. Pollution prevention also includes any project which protects natural resources through conservation or increased efficiency in the use of energy, water or other materials. "In-process recycling," wherein waste materials produced during a manufacturing process are returned directly to production as raw materials on site, is considered a pollution prevention project.

In all cases, for a project to meet the definition of pollution

EPA'S SUPPLEMENTAL ENVIRONMENTAL PROJECTS POLICY

Questions and Answers for the Practitioner

January 1999

A. Nature of the Policy

1. Q. *What is the Supplemental Environmental Projects (SEP) Policy?*

   A. EPA's SEP Policy encourages the use of environmentally beneficial projects as part of the settlement of an enforcement action. Through SEPs, the settlement of an enforcement action can result in environmental and public health protections beyond that specifically required by law.

   The SEP Policy provides criteria to guide when and how SEPs may be included as part of a settlement.

2. Q. *How do SEPs relate to penalties?*

   A. SEPs do not replace or substitute for penalty dollars. In all enforcement actions, EPA seeks to obtain an appropriate penalty considering a variety of factors, such as the economic benefit gained by the violator and the seriousness of the violation. EPA also considers a defendant's commitment and ability to perform a SEP as a relevant factor in establishing an appropriate penalty. The final settlement penalty generally will be lower for a violator who agrees to perform an acceptable SEP compared to a violator who does not agree to perform a SEP.

3. Q. *How does the SEP Policy promote the Agency's program goals?*

   A. SEPs can secure environmental or public health protection and improvements in addition to those achieved by compliance with applicable laws. SEPs can also further Agency goals such as pollution prevention and environmental justice. For example,

Attachment 3

about the SEP Policy. However, it would be inappropriate for the Agency to pressure a defendant to undertake a SEP.

4. Q. *Can I use a SEP to mitigate the stipulated penalties?*

A. Only in extraordinary circumstances. Stipulated penalties provide a significant incentive for compliance with the consent agreement. If a violator cannot honor the terms of the consent agreement, there may be little reason to believe the violator capable of honoring the commitment to perform a SEP. However, in some circumstances the violator may be able to demonstrate its ability and intention to perform a SEP, and the reasons for noncompliance with the agreement may be such that performance of a SEP would not undermine the deterrent purposes of stipulated penalties. Even under these circumstances, the settlement agreement must have established stipulated penalty liability as a range of possible values for the violations at issue. Ranges for stipulated penalties, however, can diminish the deterrence value, and so should be used with discretion.

C. Definition and Characteristics of a SEP

Environmentally Beneficial

1. Q. *The defendant wants to purchase computers and set them up in a local library to provide community access to environmental Internet sites. Is this an acceptable SEP?*

A. No. This project provides no direct benefit to public health or the environment. Greater access to technology may be of some indirect benefit to the environment or public health by increasing community access to government processes such as permitting decisions. However, such benefit is too tenuous to provide any quantifiable value for which we could provide SEP credit.

In Settlement of an Enforcement Action

2. Q. *At the time of the inspection, Company Z had been working on developing a new process design that would eliminate 20% of its waste stream. Company Z proposes to implement its new design for SEP credit. Would this be considered a project done "in settlement of an enforcement action?"*

A. No. This project was contemplated by the company prior to the enforcement action. It is something that the company would do anyway, and therefore no additional benefit to the environment would be achieved by providing SEP credit for the project.

3. Q. *The defendant wants to perform a SEP that would allow a non-profit organization to continue its environmental assessment work. Apart from any other provisions of the SEP Policy that might apply, would this be a SEP done in "settlement of an enforcement action"?*

A. Not if the money was being used to extend the existing work. Under that circumstance, the activity would be done without the incentive of the enforcement action. The Agency would achieve no additional benefit to the environment by providing SEP credit for this project. If the money was going to perform a new, different assessment, then it may be appropriate.

Not Otherwise Legally Required to Perform (or likely to be required to perform as injunctive relief)

4. Q. *Defendant G will become subject to stricter air emissions standards in three years. It proposes a SEP that will bring it into compliance with the new air standards in two years. Is this an acceptable SEP?*

A. No. The SEP Policy states that it is appropriate to provide SEP credit for accelerated performance if it will result in compliance two or more years earlier than legally required. Under the above scenario, compliance is accelerated only by one year. Because the value of accelerated compliance is only the cost attributable to doing the project earlier (not the cost the project as a whole) the value of accelerated compliance only becomes significant when longer time frames are involved.

CH2MHILL

March 7, 2001

Mr. Harold Voth
Metropolitan Council Environmental Services
Metro Plant Engineering
2450 Childs Road
St. Paul, MN 55106

Subject: Replacement of Dry ESP with Fabric Filter

Dear Mr. Voth:

CH2M HILL has reviewed and concurs with the Von Roll recommendation to replace the dry electrostatic precipitator (ESP) with a fabric filter in the fluidized bed incinerator and air pollution control trains. The fabric filter technology would be an enhancement to the MCES voluntary mercury reduction program while maintaining an equivalent level of particulate removal capability.

The EPA-CICA Fact Sheets list the design particulate removal efficiency for pulse-jet cleaned fabric filters and wire-plate dry ESPs to be 99 to 99.9 percent for both technologies. The fabric filter should actually result in slightly better particulate removal efficiencies because it is less sensitive to fluctuations in gas stream conditions, variations in particle size or variations in physical parameters, such as resistivity of the particulate matter. The main benefit of the fabric filter is the potential for increased mercury removal efficiency when combined with upstream carbon injection. Carbon injection followed by a dry ESP requires that mercury adsorption onto carbon particles occurs in a reaction chamber. The electrostatically charged carbon particles are then collected and removed in the dry ESP. In the fabric filter, however, mercury adsorption can occur in both the reaction chamber and on the fabric filter. A layer of carbon will develop on the fabric filter surface and improve the adsorption efficiency between the carbon and the mercury.

We believe carbon injection followed by a dry ESP will provide up to 70 percent mercury removal efficiency, whereas carbon injection followed by a fabric filter should be able to achieve up to 90 percent mercury removal.

Attachment
4

Comparable building space will be required for each of the two processes and we expect the capital costs for each system to be approximately equal.

If you have any questions please feel free to contact us.

Sincerely,

CH2M HILL

John Borghesi, P.E.

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November 8, 2001

Mary T. McAuliffe, Esq.
Environmental Protection Agency Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Re: Metropolitan Council Supplemental Environmental Project

Dear Mary:

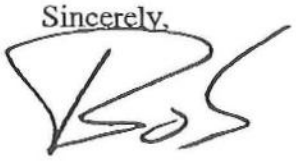
The enclosed memo from Jon Sandstedt provides the "real world" validation that EPA should find helpful when examining Met Council's analysis of the performance of the control technology without the addition of a dry ESP or fabric filters. As you will see, John has established that: (1) a BACT determination for another fluidized bed incinerator (FBI) required only a wet scrubber followed by a wet ESP in order to meet BACT emission limits comparable to those imposed on the FBIs at the Metro Plant; (2) an independent survey of FBI emission performance confirms that facilities equipped with wet scrubbers and wet ESP control trains consistently attain emission levels that would comply with the Metro Plant permit limits. John also goes on to summarize the analysis establishing that compliance can be achieved using a wet scrubber/wet ESP control train, using AP-42 with conservative assumptions, to confirm that compliance would not require a dry ESP or fabric filters.

We trust that this is the type of validation of the AP-42 analysis that EPA was looking for, and that this confirms that no technical or legal basis exists to challenge the proposed modification of the SEP. If you have any questions, please let me know. As in the past, we would have no objection if Erik wanted to speak with John directly if there are any remaining

DORSEY & WHITNEY LLP

points that need further clarification. We sincerely appreciate your cooperation in this regard, and hope that we can move forward with what all objective minds have agreed is a desirable improvement to the SEP.

Sincerely,



Robert E. Cattanach

Attachment
cc: Mark Thompson, Esq.
Randall Stone, Esq.
Rebecca Flood
William Moore
Erik Hardin

Compliance with Particulate Emission Limits
Metropolitan Wastewater Treatment Plant
Fluidized Bed Incinerators
November 9, 2001
Prepared by Earth Tech, Inc.

Four separate analyses confirm that the fluidized bed incinerators (FBIs) to be constructed at the Metropolitan Wastewater Treatment Plant (Metro Plant) would achieve compliance with the emission limits specified in its MPCA air emissions permit even without the installation of a dry electrostatic precipitator (ESP) or fabric filter baghouse. Sufficient control is provided by the venturi scrubber and wet ESP to achieve compliance with the permit limits for total particulate matter (PM), PM_{10}, and lead. Therefore, the installation of a dry ESP or fabric filter baghouse qualifies as a Supplemental Environmental Project.

The following analyses were performed:

1. An independent survey of FBI emission performance conducted by the Metropolitan Council's design consultant confirms that FBIs equipped with wet scrubber/wet ESP air pollution control trains consistently achieve emission concentrations that would comply with the Metro Plant permit limits.
2. A search of EPA's RACT/BACT/LAER Clearinghouse data base shows that a Best Available Control Technology (BACT) determination for a FBI at another wastewater treatment plant has required installation of a two-stage air pollution control system consisting of a wet scrubber followed by a wet ESP. The BACT emission limits for this unit are comparable to the limits imposed on the FBIs at the Metro Plant.
3. Information published in EPA's AP-42 emission factor guidance regarding particulate size distribution and air pollution control efficiencies were applied to site-specific measurements of the potential uncontrolled emissions, which were conservatively assumed to be equal to the inert solids in the sewage sludge.
4. AP-42 controlled emission factors, expressed in lb of emission per dry ton of sludge charged, confirm that compliance is achievable.

Each of these analyses is explained further in the following sections.

Independent Survey of FBI Performance

Performance tests conducted on FBI installations similar to those planned for the Metro Plant indicate that the emission limits can be met using only a wet venturi scrubber and a wet ESP. CH2MHill, the design contractor for this project, provided performance test data obtained for three other incinerators that are similar in design to those planned for the Metro Plant. These data are included in Exhibit A. CH2MHill provided information on four other facilities. Each of these facilities is equipped with a venturi scrubber/tray tower and a wet ESP. Performance tests from these facilities show that particulate emissions are well below the Metro Plant's PM permit limit.

	PM Concentration (gr/dscf)
Metro Plant FBI Permit Limit	0.017 (concentration equivalent to permit limit)
Bayshore Regional Sewerage Authority – test result	0.00025
North West Bergen County Utilities Authority – test result	0.002
Pfizer, Inc., U.S. Pharmaceuticals – test result	0.0016
Pequannock, Lincoln Park, & Fairfield Sewerage Authority – test result	0.0031

Note: MCES concentration numbers are equivalent to the permitted limits.

RACT/BACT/LAER Clearinghouse

A search of the RBLC database for sewage sludge incinerators indicates the MCES Metro plant will be able to achieve its emissions limits without the use of a dry ESP or a fabric filter. The results of this search are included in Exhibit B. The search showed one PSD applicable unit with a similar configuration to the MCES Metro incinerators. RBLC ID# CT-0132, is a fluidized bed sewage sludge incinerator located in Waterbury, Connecticut. This incinerator is equipped with a venturi tray tower scrubber and a wet electrostatic precipitator. This combination of control equipment results in a PM limit of 0.015 gr/dscf @ 7% O_2, and a control efficiency of 99.9%. The PM emission limit for the MCES Metro plant is 0.736 lb/Dt sludge, which is equivalent to an exhaust concentration of 0.017 gr/dscf. The calculation for converting from lb/Dt to gr/dscf is shown below. The projected actual PM emissions, with only the venturi scrubber and wet ESP operating, are 0.582 lb/Dt sludge, which is equivalent to a concentration of 0.014 gr/dscf and corresponds to a control efficiency of 99.9%. This data shows that an FBI equipped with only a wet scrubber and a wet ESP will be able to meet the emission limits imposed on the Metro Plant FBIs.

	Controlled Emissions Factor (lb/dry ton sludge charged)	PM Concentration (gr/dscf @ 7% O_2)
MCES Permit Limit	0.736	0.017
MCES Predicted Actual Emissions	0.582	0.014
RBLC CT-0132 Limit		0.015

Example calculation:

0.736 lb/Dt x 4.375 Dt/hr (design capacity) x 1/60 hours/minute = 0.0537 lb/min

0.0537 lb/min / 16,100 acfm = 3.33E-06 lb/acf

3.33E-06 lb/acf x 7000 gr/lb = 0.023 gr/acf

0.023 gr/acf x (537 deg R / 710 deg R) = 0.017 gr/dscf (temperature correction)

Note: Assumes exhaust gas is dry. Actual concentration will be lower due to water content of exhaust.

Control Efficiency Calculations

Estimates of controlled emissions of PM, PM10, and Pb are less than the respective permit limits. A comparison of the estimates of controlled emissions with the permit limits is summarized in the table below. The estimates are based on the assumption that each air pollution control train would consist of a wet scrubber and a wet electrostatic precipitator and that no dry electrostatic precipitator would be installed between the waste heat boiler and the wet scrubber.

Pollutant	Controlled Emissions (lb/dry ton sludge charged)	Permit Limit (lb/dry ton sludge charged)
PM	0.58	0.736
PM10	0.42	0.434
Lead	0.0019	0.0119

The calculations, underlying assumptions, and data sources are described below and in Exhibit C. It is conservatively assumed that all of the inert materials that are charged to the fluidized bed sewage sludge incinerator will be discharged from the incinerator with the exhaust gases. The inert mass in Metro's sludge charged to the incinerators is approximately 600 lb/Dt, which is assumed to represent the uncontrolled emission factor for the incinerators.

The calculations of maximum controlled emissions for PM, PM_{10}, and lead are based on size-specific control efficiencies for each piece of control equipment. The efficiencies were obtained from AP-42, Appendix B-2, Table B.2-3.

Electostatic precipitator design parameters can be changed to meet the emission requirements of the specific application. Design variables that can be adjusted include the number of fields, the specific collection area, plate separation distance, and other parameters. The impact of these parameters is described in the *Air Pollution Engineering Manual, Second Edition* (Air & Waste Management Association, John Wiley and Sons, 2000, pages 86-99). AP-42, Appendix B-2, Table B.2-3, specifies efficiencies to be used for low, medium, and high efficiency ESPs. The control efficiencies for this analysis were taken from the entry for "Electrostatic Precipitator – medium efficiency, other".

The particle size distribution for the uncontrolled emissions was obtained from AP-42, Section 2.2, Table 2.2-10, and was applied to the uncontrolled particle emission factor of 600 lb/Dt. The size-specific control efficiency was applied to the inlet emission factor for the dry ESP (for this exercise, the control efficiency is zero), and an outlet emission factor was determined for each size division. This serves as the inlet emission factor for the venturi scrubber. The size-specific control efficiency is applied to this emission factor and distribution. The outlet emission factor from the venturi scrubber then becomes the inlet emission factor for the wet ESP. A final emission factor and overall control efficiency is then determined.

Based on the 600 lb/Dt emission factor and the size specific control efficiencies, the controlled emission factor for PM is 0.58 lb/Dt. The permit limit for PM is 0.736 lb/Dt. The controlled emission factor for PM_{10} is 0.42 lb/Dt. The permit limit for PM10 is 0.434 lb/Dt.

Lead emissions are calculated in the same manner based on the assumption that the uncontrolled lead emission factor is distributed over the same size range as PM_{10}. The uncontrolled lead emission factor of 0.276 lb/Dt was obtained from 1997 sewage sludge sampling. The controlled emission factor for lead is 0.0019 lb/Dt. The permit limit for lead is 0.0119 lb/Dt.

Published Emission Factors

A comparison of the predicted Metro Plant FBI emissions performance with the emission factors published in AP-42 indicates that the Metro Plant FBIs would be able to meet the emission limits without a dry ESP or fabric filter baghouse. The table below shows a comparison of the emission factors published in AP-42, Fifth Edition, Section 2.2, "Sewage Sludge Incineration", Table 2.2-6, with the Metro Plant FBI permit limit. The AP-42 factor for an FBI equipped with a wet scrubber with wet ESP indicates that controlled emissions are less than the Metro Plant FBI emission limits.

	PM Emissions (lb/dry ton sludge charged)	Pb Emissions (lb/dry ton sludge charged)
Metro Plant FBI Permit Limit	0.736	1.2E-02
AP-42, Venturi/impingement/wet ESP	0.2	2.0E-06

Exhibit A
Contractor Supplied FBI Performance Data

SECTION 1.0
INTRODUCTION

Environmental Laboratories Inc. (ELI) was retained by Hankin Environmental Systems Inc. (HES) to perform all the required emission testing for the Pequannock, Lincoln Park and Fairfield Sewerage Authority (PLFSA) located in Lincoln Park, New Jersey. The emission test program was performed to determine compliance with the State of New Jersey's Department of Environmental Protection and Energy (NJDEP) Permit to Operate.

A summary of the testing program used can be found in Table 1-1. A summary of the test program results can be found in Table 1-2. All parameters were below or well below all applicable limits. Please note that in the cases of Hydrogen Chloride (HCl), Cadmium (Cd), Nickel (Ni), and Zinc (Zn), the blank concentrations were used in order to calculate compliance with emission limits. This was done due to the blank concentration being higher than the samples collected, therefore showing the worst case scenario. Table 1-3 shows a summary of actual results obtained for the above mentioned parameters in order to calculate scrubber efficiency. Detailed results of each individual test can be found in Section 4.0 and the appropriate appendices. The incinerator operated at approximately 1.5 dry tons/hr of sludge throughout the test program.

Testing was performed on October 26, 27 and 28, 1994.

SECTION 2.0
DESCRIPTION OF THE FACILITY

Incinerator #2 is a Fluid Bed Municipal Sludge Cake Incinerator located within the Pequannock, Lincoln Park and Fairfield Sewerage Authority's Treatment Plant at the end of Lincoln boulevard, Lincoln Park, New Jersey.

The system is designed to incinerate belt press filter cake from a mixture of chemically conditioned thickened waste sludge, consisting of combined gravity thickened primary and activated secondary sludge of the following specification:

18% to 30% Dry Solids

50% to 75% Volatile Solids

9,500 to 11,500 Btu/lb Combustibles Higher Heating Value

The capacity of the incinerator is 36 dry tons per day. This is based on a sludge specification of:

26% Dry Solids

75% Volatile Solids

9,500 Btu/lb Combustibles Higher Heating Value

The incinerator is designed to exhaust gases at a temperature ranging between 1500 and 1600°F. The incinerator exhaust gases first pass through a heat exchanger to heat incoming sludge combustion air, then through a Venturi Scrubber and Impingement Tray Tower with provision to inject caustic and finally through a Wet Electro Static Precipitator before discharging into the atmosphere via the stack.

Figure 2-1 presents a schematic of the facility's Process Flow.

TABLE 1-2
PEQUANNOCK, LINCOLN PARK & FAIRFIELD SEWERAGE AUTHORITY
SUMMARY OF EMISSION TEST RESULTS
OUTLET

Parameter	Engine Units	Avg. of 3 Runs	Permit Limit
Particulate Matter (PM)	gr/dscf @ 7% O_2	0.0031	0.015
Particulate Matter (PM)	lb/hr	0.1865	0.75
Sulfur Dioxide (SO_2)	ppm @ 7% O_2	32.19	50.0
Sulfur Dioxide (SO_2)	lb/hr	2.22	3.10
Nitrogen Oxides (NO_x)	lb/hr	0.87	3.84
Nitrogen Oxides (NO_x)	lb/tons DS	0.61	2.53
Carbon Monoxide (CO)	lb/hr	0.01	2.94
Carbon Monoxide (CO)	ppm	0.21	100.0
Volatile Organic Compounds (VOC)	lb/hr	0.02	0.3
Hydrogen Chloride (HCl)	lb/hr	0.012	0.14
2,3,7,8 Tetrachloro-di-benzo dioxin (TCDD)	lb/hr	4.09 E-10	4.32 E-9
Benzo (a) Pyrene	lb/hr	2.15 E-6	6.19 E-4
Arsenic (As)	lb/hr	1.20 E-5 ND	1.5 E-4
Cadmium (Cd)*	lb/hr	4.78 E-5	1.7 E-3
Chromium (Total)	lb/hr	1.16 E-4	8.1 E-3
Nickel (Ni)*	lb/hr	1.85 E-4	3.7 E-2
Beryllium (Be)	lb/hr	1.20 E-6 ND	1.2 E-4
Lead (Pb)	lb/hr	3.10 E-4	0.0035
Mercury (Hg)	lb/hr	7.91 E-3	0.0285
Copper (Cu)	lb/hr	7.58 E-5	—
Selenium (Se)	lb/hr	1.76 E-5	—
Zinc (Zn)*	lb/hr	1.41 E-3	—
Hexavalent Chromium (Cr^{+6})	lb/hr	1.76 E-6	—
Opacity	%	0.48	10
Cyclonic Flow	degrees	0.75	20

Notes: ND - Not detected, represents limit of analytical detection.
* - Blank concentration used instead of sample concentration.

MCES Project 970340
Fluid Bed Incineration/Air Pollution Control Systems

PROJECT REFERENCES

Agency Name - Bayshore Regional Sewerage Authority
Agency Address - 100 Oak Street
Union Beach, NJ 07735

Agency Contact Mr. Gary Marshall Phone - 908-739-2459

Project Description/DB's Role: IDI was subcontractor to General Contractor, but provided installation.

Scope of supply included reactor, refractory, primary and secondary heat exchangers, pneumatic sand loading and return systems, preheat system, blowers, pumps, venturi scrubber/tray tower, caustic addition system, wet ESP, stack, ductwork, piping, wiring, CEMS, instrumentation, PLC based control system and complete installation and testing.

Years of Operation From – November 1995 To - Present
Number of FBI Trains - One Design Dry Solids Feed (US tons/hr) - 1.125
Operating Dry Solids Feed (US tons/hr) - 1.125

Type of Sludge: Primary and Waste Activated Municipal Sludge

Feed Solids Characteristics
Moisture (%) - 77 VSS(%) - 70

FBI Reactor

Wind box Dia. (ft) -	11.0	height (ft) -	6	Temp (°F) -	1200
Sand Bed Dia. (ft) -	14.2	height (ft) -	5	Temp (°F) -	1300
Free Board Dia. (ft) -	17.8	height (ft) -	17	Temp (°F) -	1550

Free Board Residence Time (above expanded sand bed -seconds) - > 7
Bed superficial space velocity (ft/sec) – 3.08
Free Board superficial space velocity (ft/sec) - 1.96
Number of feed points - Two

Description of sand bed support structure – Refractory Arch with 1200°F preheated air

Waste Heat Recovery - No Steam - Pressure (psi) -
Manufacturer - Type -

Turbine Generator - No Size -
Manufacturer - Type -

Air Pollution Control Train – Venturi Scrubber/Tray Tower with Caustic Addition and Wet ESP. Plume suppression by hot air injection

Performance Test Results. Particulate – 0.00025 gr./dscf
CO – 0.4 ppmv
THC – 1.9 ppmv
NOx – 22.1 ppmv
SO2 – 22.2 ppmv

MCES Project 970340
Fluid Bed Incineration/Air Pollution Control Systems

Project References

Agency Name - North West Bergen County Utilities Authority
Agency Address - 30 Wyckoff Avenue, PO Box 225
Waldwick, NJ 07463

Agency Contact Mr. John Myer Phone - 201-447-2660

Project Description/DB's Role: IDI was prime contractor.
Scope of supply included reactor, refractory, preheat system, primary and secondary heat exchangers, venturi scrubber, wet ESP, pumps, blowers, ductwork, piping, wiring, CEMS, PLC based control system and testing.

Years of Operation From - December 1999 To - Present
Number of FBI Trains - One Design Dry Solids Feed (US tons/hr) - 1.1
Operating Dry Solids Feed (US tons/hr) – 1.1

Type of Sludge: Primary and Waste Activated Municipal Sludge

Feed Solids Characteristics:
Moisture (%) - 77 VSS(%) - 78

FBI Reactor

Wind box Dia. (ft) -	9.6	height (ft) -	6	Temp (°F) -	1200
Sand Bed Dia. (ft) –	12.75	height (ft) -	6	Temp (°F) -	1300
Free Board Dia. (ft) –	16.0	height (ft) -	16	Temp (°F) -	1550

Free Board Residence Time (above expanded sand bed -seconds) – 7.1
Bed superficial space velocity (ft/sec) – 3.27
Free Board superficial space velocity (ft/sec) - 2.07
Number of feed points - Two

Description of sand bed support structure – Refractory arch with 1200°F preheated air

Waste Heat Recovery - No Steam - Pressure (psi) -
Manufacturer - Type -

Turbine Generator - No Size -
Manufacturer - Type -

Air Pollution Control Train – Venturi scrubber/tray tower and wet ESP. Plume suppression by hot air injection

Performance Test Results
Particulate – 0.002 grains/dscf
CO – 9.7ppmv
THC - 4.6ppmv
NOx – 56.8 ppmv
HCl – 0.2 ppmv
SO2 – 0.62 ppmv

MCES Project 970340
Fluid Bed Incineration/Air Pollution Control Systems

Project References

Agency Name - Pfizer, Inc. U.S. Pharmaceuticals
Agency Address - 445 East Point Road
Groton, CT 06340-5197

Agency Contact Mr. Michael Ritz Phone - 203-441-3374

Project Description/DB's Role: IDI was subcontractor to General Contractor
Scope of supply included reactor, refractory, preheat system , primary heat exchanger, wet scrubber/tray tower, caustic system, wet ESP, ash thickener, vacuum filter, sand and clay addition systems, blowers, pumps, MCC, ducting, instrumentation, CEMS, PLC based control system and testing.

Years of Operation From - September 1995 To - Present
Number of FBI Trains - One Design Dry Solids Feed (US tons/hr) - 0.76
Operating Dry Solids Feed (US tons/hr) -

Type of Sludge: Industrial biosolids, contaminated air

Feed Solids Characteristics
Moisture (%) - 73 VSS(%) – 75.4

FBI Reactor

Wind box Dia. (ft) -	7.7	height (ft) -	6	Temp (°F) -	1200
Sand Bed Dia. (ft) –	10.1	height (ft) -	5	Temp (°F) -	1300
Free Board Dia. (ft) –	12.2	height (ft) -	16	Temp (°F) -	1550

Free Board Residence Time (above expanded sand bed -seconds) - > 7
Bed superficial space velocity (ft/sec) – 3.2
Free Board superficial space velocity (ft/sec) - 2.1
Number of feed points - Two

Description of sand bed support structure – Refractory Arch with 1200°F preheated air

Waste Heat Recovery - No Steam - Pressure (psi) -
Manufacturer - Type -

Turbine Generator - No Size -
Manufacturer - Type -

Air Pollution Control Train – Wet venturi scrubber/tray tower and wet ESP

Performance Test Results
Particulate – 0.0016 gr./dscf
CO – 0.8 ppmv
NOx – 41 ppmv
THC – 4 ppmv
SO2 – 16 ppmv

Exhibit B
RBLC Search Report

Report Date: 11/05/2001 Control Technology Determinations (Freeform)

RBLC Id:	CT-0132
*Company:	CITY OF WATERBURY
Address:	199 MUNICIPAL ROAD
City:	WATERBURY
County:	NEW HAVEN
State:	CT
Zip Code:	06708-
EPA Region:	1
Agency Code:	CT001
Agency Name:	CONNECTICUT BUREAU OF AIR MANAGEMENT
Agency Contact:	DAVID LA RIVIERE
Agency Phone:	(860) 424-3028
Agency Email:	
*Permit/File No.:	192-0149
*SIC:	4952
Airs Id:	09-009-7065
EPA Id:	
Plant Contact Name:	DAVID LA RIVIERE
Plant Contact Phone:	(860) 424-3028
Plant Contact Email:	
Fuel:	
Abatement:	
UTM Zone:	
X Coordinate:	
Y coordinate:	
Application Received Date:	07/20/1994 ACT
Permit Issuance Date:	06/15/1995 ACT
Start Up Date:	11/20/1996 ACT
Compliance Validation Date:	05/28/1997 ACT
Entry Date:	06/17/1999
Last Update:	06/17/1999
New or Modified:	
Public Hearing:	
Narrative:	
Notes:	MUNICIPAL SEWAGE TREATMENT PLANT

Report Date: 11/05/2001 Control Technology Determinations (Freeform)

*Process:	INCINERATOR
*Process Type:	21.004
*SCC Code:	5-01-005-16
Primary Fuel:	SEWAGE SLUDGE
Throughput:	2.08
Throughput Unit:	T/H DRY
Compliance Verified:	No
Stack Testing:	No
Inspections:	No
Calculations:	No
Other Testing:	No
Other Testing Method:	
Process/Compliance Notes:	DORR-OLIVER N-4003-F01 FLUIDIZED BED SEWAGE SLUDGE INCINERATOR
*Pollutant:	PM
*CAS Number:	PM
*Control Method Code:	A
*Control Method Description:	VENTURI TRAY TOWER SCRUBBER/WET ELECTRO-STATIC PRECIPITATOR
Number of Options Considered:	2
Rank of Option Selected:	1

Primary Emissions:	.015
Primary Emissions Unit:	GR/DSCF @ 7% o2
*Basis:	BACT
*Percent Efficiency:	99.9
Alternate Emission:	.02
Alternate Emission Unit:	LB/MMBTU
Standard Emission:	0
Standard Emission Unit:	
*Emission Type:	P
CAP Cost of Control Equpment:	$ 1,115,167
Annualized Cost:	$ 380,825
O&M Cost:	$ 163,366
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	1994

*Pollutant:	SOX
*CAS Number:	7446
*Control Method Code:	A
*Control Method Description:	VENTURI TRAY TOWER SCRUBBER
Number of Options Considered:	2
Rank of Option Selected:	1
Primary Emissions:	.29
Primary Emissions Unit:	LB/MMBTU
*Basis:	BACT
*Percent Efficiency:	80
Alternate Emission:	15.43
Alternate Emission Unit:	PPM
Standard Emission:	0
Standard Emission Unit:	
*Emission Type:	P
CAP Cost of Control Equpment:	
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	

*Pollutant:	NOX
*CAS Number:	10102
*Control Method Code:	P
*Control Method Description:	COMBUSTION CONTROL
Number of Options Considered:	3
Rank of Option Selected:	2
Primary Emissions:	.16
Primary Emissions Unit:	LB/MMBTU
*Basis:	BACT
*Percent Efficiency:	0
Alternate Emission:	8.33
Alternate Emission Unit:	PPM
Standard Emission:	0
Standard Emission Unit:	
*Emission Type:	P
CAP Cost of Control Equpment:	
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	

*Pollutant:	VOC
*CAS Number:	VOC
*Control Method Code:	P

Exhibit B.txt

*Control Method Description:	COMBUSTION CONTROL
Number of Options Considered:	2
Rank of Option Selected:	1
Primary Emissions:	.04
Primary Emissions Unit:	LB/MMBTU
*Basis:	BACT
*Percent Efficiency:	0
Alternate Emission:	2.11
Alternate Emission Unit:	PPM
Standard Emission:	0
Standard Emission Unit:	
*Emission Type:	P
CAP Cost of Control Equpment:	
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	

*Pollutant:	CO
*CAS Number:	630-08-0
*Control Method Code:	P
*Control Method Description:	COMBUSTION CONTROL
Number of Options Considered:	2
Rank of Option Selected:	1
Primary Emissions:	.07
Primary Emissions Unit:	LB/MMBTU
*Basis:	BACT
*Percent Efficiency:	0
Alternate Emission:	3.7
Alternate Emission Unit:	PPM
Standard Emission:	0
Standard Emission Unit:	
*Emission Type:	P
CAP Cost of Control Equpment:	
Annualized Cost:	
O&M Cost:	
Cost Effectiveness:	
Cost Verified by Agency:	No
Dollar Year Used In Cost Estimates:	

Exhibit C
Control Efficiency Calculations

Metropolitan Wastewater Treatment Plant
Fluidized Bed Incinerator Emission Rates

PM

Size Range (µm)	Dry ESP (%)	Venturi Scrubber (%)	Wet ESP - Medium Efficiency (%)
6.0-10	0	99	97
2.5-6	0	95	90
0-2.5	0	90	60

Uncontrolled Mass = 600 lb/Dt (facility sludge inert mass)

Particle size (µm)	Mass % < (%)	Size range (µm)	Mass % in range (%)	Uncontrolled (lb/Dt)	Dry ESP exit (lb/Dt)	Venturi exit (lb/Dt)	Wet ESP exit (lb/Dt)
>15		>15	85	510	510	5.1	0.153
15	15	10 - 15	5	30	30	0.3	0.009
10	10	5 - 10	4.7	28.2	28.2	0.282	0.00846
6	6.3	2.5 - 5	2.5	15	15	0.75	0.075
2.5	2.8	1 - 2.5	1.6	9.6	9.6	0.96	0.192
1	1.2	0.625 - 1	0.45	2.7	2.7	0.27	0.054
< 0.625	0.75	< 0.625	0.75	4.5	4.5	0.45	0.09
			Controlled mass rate (lb/Dt) =		600	6.112	0.56148
			Device efficiency =		0.00%	98.65%	92.83%
			Cumulative efficiency =			98.65%	99.90%

Overall Efficiency = 99.903%
Controlled Emissions = 0.5615 lb PM/Dt
Permit Limit = 0.736 lb PM/Dt (equivalent to permit limit of 3.22 lb/hr, 4.375 Dt/hr feedrate)

PM10

Size Range (µm)	Dry ESP (%)	Venturi Scrubber (%)	Wet ESP - Medium Efficiency (%)
6.0-10	0	99	97
2.5-6	0	95	90
0-2.5	0	90	60

Uncontrolled Mass = 60 lb/Dt (facility sludge inert mass)

Particle size (µm)	Mass % < (%)	Size range (µm)	Mass % in range (%)	Uncontrolled (lb/Dt)	Dry ESP exit (lb/Dt)	Venturi exit (lb/Dt)	Wet ESP exit (lb/Dt)
10	100	5 - 10	47	28.2	28.2	0.282	0.00846
5	53	2.5 - 5	25	15	15	0.75	0.075
2.5	28	1 - 2.5	16	9.6	9.6	0.96	0.192
1	12	0.625 - 1	4.5	2.7	2.7	0.27	0.054
< 0.625	7.5	< 0.625	7.5	4.5	4.5	0.45	0.09
			Controlled mass rate (lb/Dt) =		60	2.712	0.41946
			Device efficiency =		0.00%	95.48%	84.53%
			Cumulative efficiency =			95.48%	99.30%

Overall Efficiency = 99.30%
Overall Emission Factor = 0.4195 lb PM10/Dt
Permit Limit = 0.434 lb PM10/Dt (equivalent to permit limit of 1.90 lb/hr, 4.375 Dt/hr feedrate)

Lead

Size Range (µm)	Dry ESP (%)	Venturi Scrubber (%)	Wet ESP - Medium Efficiency (%)
6.0-10	0	99	97
2.5-6	0	95	90
0-2.5	0	90	60

Uncontrolled Mass = 0.276 lb/Dt (from 1997 sewage sludge sampling, assumed distributed over PM10 range)

Particle size (µm)	Mass % < (%)	Size range (µm)	Mass % in range (%)	Uncontrolled (lb/Dt)	Dry ESP exit (lb/Dt)	Venturi exit (lb/Dt)	Wet ESP exit (lb/Dt)
10	100	5 - 10	47	1.30E-01	1.30E-01	1.30E-03	3.89E-05
5	53	2.5 - 5	26	6.90E-02	6.90E-02	3.45E-03	3.45E-04
2.5	28	1 - 2.5	16	4.42E-02	4.42E-02	4.42E-03	8.83E-04
1	12	0.625 - 1	4.5	1.24E-02	1.24E-02	1.24E-03	2.48E-04
< 0.625	7.5	< 0.625	7.5	2.07E-02	2.07E-02	2.07E-03	4.14E-04
			Controlled mass rate (lb/Dt) =		2.76E-01	1.25E-02	1.93E-03
			Device efficiency =		0.00%	95.48%	84.53%
			Cumulative efficiency =			95.48%	99.30%

Overall Efficiency = 99.30%
Overall Emission Factor = 0.0019 lb Pb/Dt
Permit Limit = 0.0119 lb Pb/Dt (from permit)

Note: Size distribution taken from Fifth Edition AP-42, Section 2.2, "Sewage Sludge Incineration", Table 2.2-10.
Control efficiencies taken from Fifth Edition AP-42, Appendix B-2, "Generalized Particle Size Distributions", Table B.2-3.